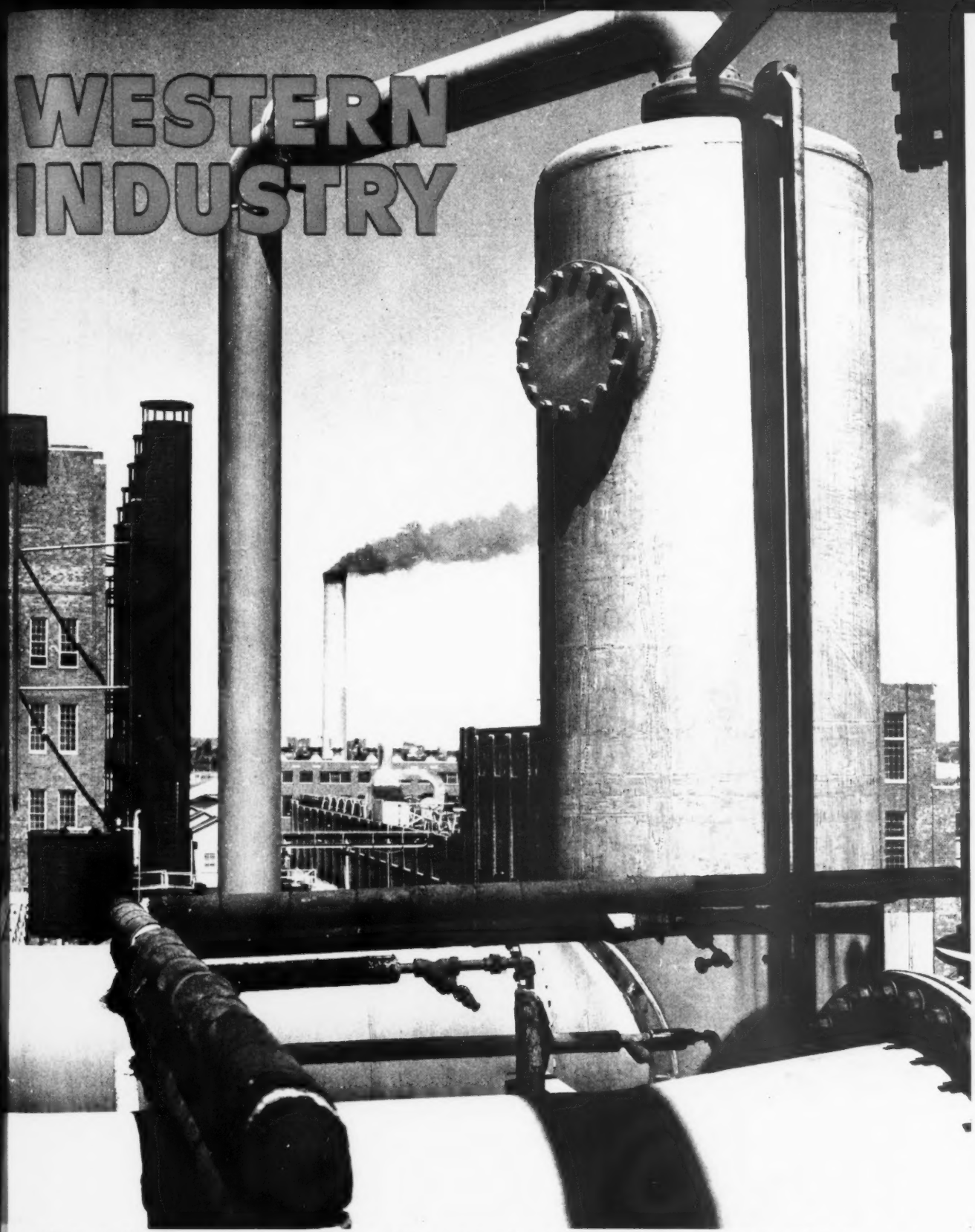
WESTERN INDUSTRY

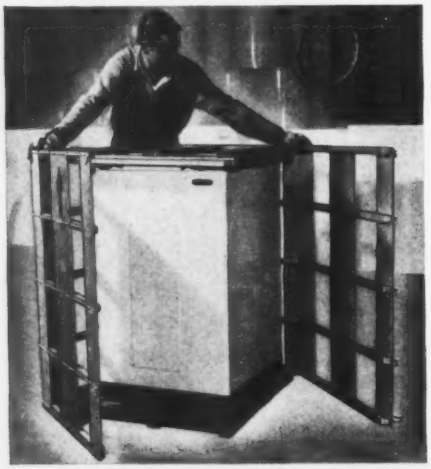


• Pacific Northwest area supplies greatest share of this country's pulp and paper requirements. For details see Page 5.

***IN THIS ISSUE:** What It Takes for a Greater Western Chemical Industry; Things Helpful to Know about the Manufacture of Steel; Disposable Paper Pallets Save Time, Money and Goods; Problems and Pitfalls Encountered when Planning New Power Plants; New Metal Evaporation Process Coats Non-Metallic Surfaces; Powerful Facts to Support Taft-Hartley Act; Western Metal Congress*

Thirty-Five Cents VOLUME XIV NUMBER 4 **April, 1949**

Step 1. Heater is lowered onto container base.



Step 2. Top in place and wrap-around goes on.

Step 3. Zip! Wrap-around is closed, ready to ship!

SAVES TIME!

CABCO ALL-BOUND CONTAINERS REDUCE PACKING TIME 50% FOR ELECTRIC HEATER MANUFACTURER

Wesix Electric Heater Company of San Francisco says Cabco all-bounds cut their packing time 50% on new Wesix table-top water heaters. Compact, 3-piece Cabco all-bounds have replaced costly 24-piece nailed crates and eliminated laborious assembly by hand. Now the Company packs its 30-gallon heater in 8 minutes or less. The Cabco containers also save Wesix 13% on shipping weight. And their open construction permits quick identification of the product inside.

IN MANY INDUSTRIES...

from the fruit and produce business to the manufacture of heavy machine parts . . . shippers are taking advantage of the multiple benefits found in Cabco all-bounds. These modern Cabco containers give excellent product protection, weigh less, stack and store in minimum space, are easy to handle, and fold together in minutes without hammer or nails. Cabco containers are made by the West's oldest, foremost manufacturer of wooden containers.

Exclusive Sales Agents:

DUFF CALIFORNIA CO.

Sawn Shook, Barrels, Veneer Slats and All-Bound Containers

100 Bush Street, San Francisco 4, California

Telephone SUtter 1-2260

CABCO CONTAINERS

THIS IS OUR 66TH YEAR

CALIFORNIA BARREL COMPANY, LTD.

OFFICES: SAN FRANCISCO, LOS ANGELES and ARCATA, CALIFORNIA
SALT LAKE CITY, UTAH · PLANTS: ARCATA, SAN FRANCISCO, LOS ANGELES

TOUGH JOBS *Simplified* AT NATIONAL'S TORRANCE PLANT

The boring mill shown above is turning a kiln tread ring 11½ feet in diameter for a large cement company. But—work up to 14 feet in diameter is also handled on this large Betts mill—a typical example of just how *TOUGH Jobs are made EASY* at National's Torrance Plant.

If you have a manufacturing problem like this or *any* problem that involves steel *making, processing* or *fabricating,* it will pay you to call National. In a single plant, under one supervision, one control, National is equipped to make the steel into castings or to forge from ingots into required shapes and sizes. The forgings and castings can be machined, heat treated, welded and assembled into heavy products for heavy industry.

The manufacturing facilities of this largest completely integrated machinery manufacturing plant in the West are at your disposal to solve production problems.

THE NATIONAL IDEAL ELECTRIC STEEL QUALITY FIRST SUPPLY COMPANY

This booklet "From Melting Furnace to Finished Product" is yours without obligation on request. It describes the complete facilities of National's Torrance Plant.

THE NATIONAL SUPPLY COMPANY

Industrial Products Division • Torrance, California • Los Angeles Area

Ideal Pressed Steel Forgings, Billets and Large Bars Are Distributed by

C. B. S. STEEL AND FORGE

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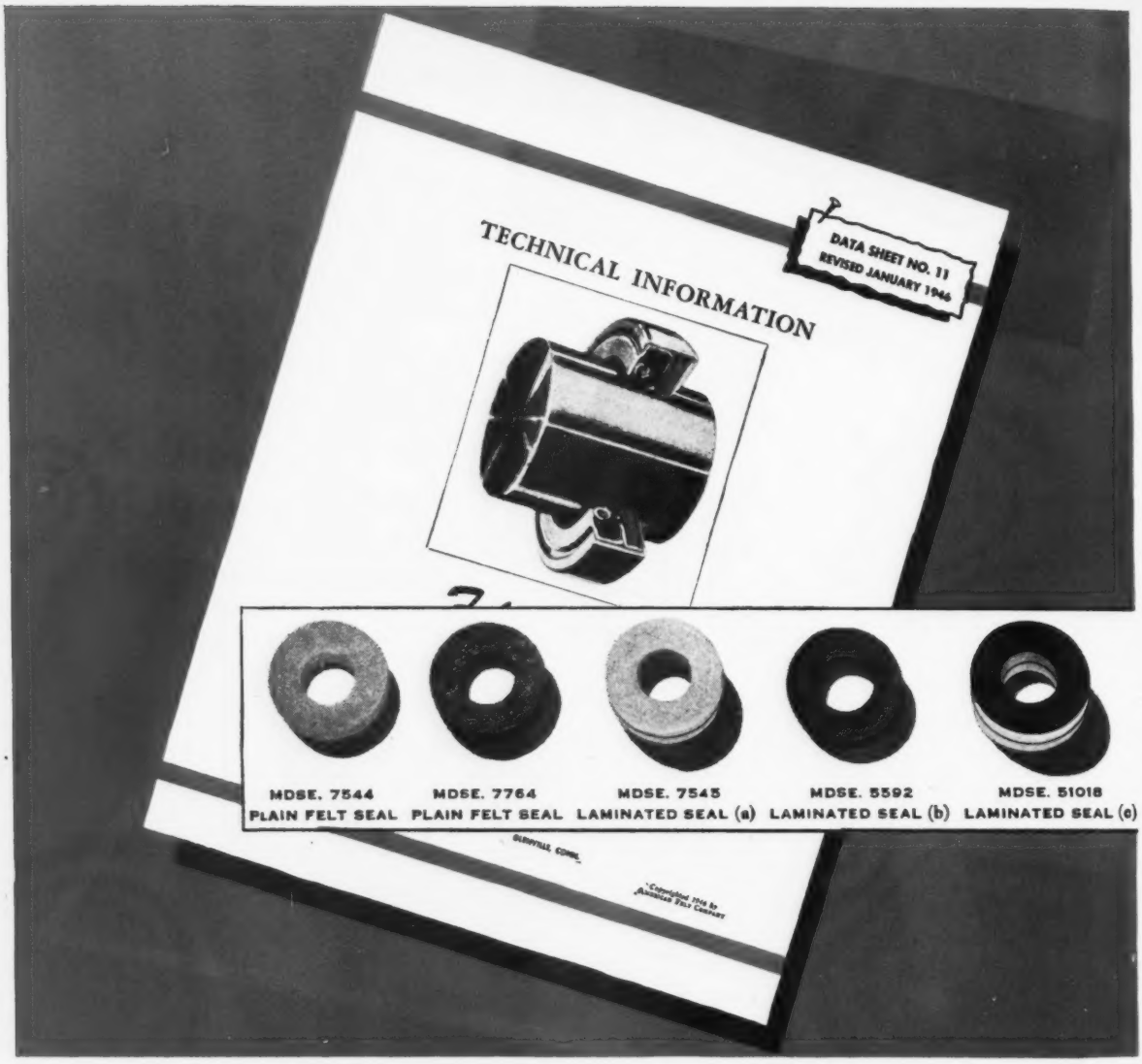

Felt Seals can work 3 ways for you

• Here are the three mechanical sealing functions performed by felt seals: (1) *they store* lubricants within themselves and hence lubricate bearings and shafts; (2) *they retain* lubricants, including pressurized, within housings, and (3) *they exclude* dust, dirt, water and other substances, giving effective protection against equipment failures due to leakage or impurities. There are many types of felt seals, both plain and laminated, to meet a wide range of conditions. For illustrative samples and complete technical information, write for Data Sheet No. 11, "Felt Seals, Their Design and Application"—an authoritative reference on this important subject. And when ordering felt for seals or other uses, be sure it is American Felt.

American Felt Company

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This Month in WESTERN INDUSTRY

VOLUME XIV APRIL, 1949 NO. 4

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Front Cover

Pacific Northwest area contains great concentration of the country's pulp and paper industry. Among the largest of these is the Puget Sound Pulp and Paper Company of Bellingham, Washington. Shown is part of their alcohol plant, with barometric condenser and vapor feeder lines in foreground.

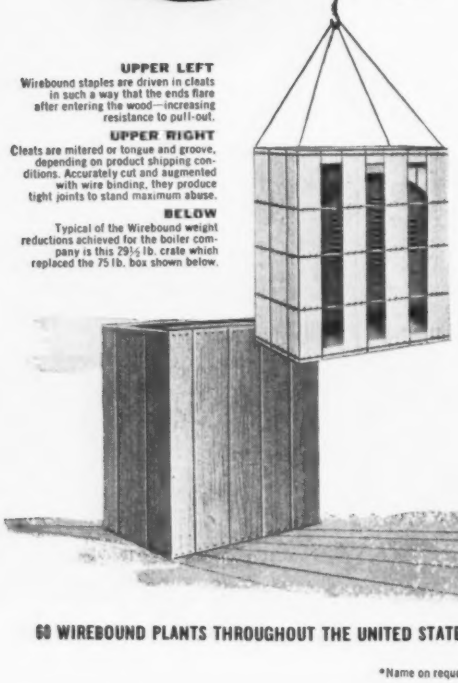
REDUCE BOX WEIGHTS ▶ UP TO 33%

WITH THESE CONSTRUCTION PRINCIPLES

UPPER LEFT
Wirebound staples are driven in cleats in such a way that the ends flare after entering the wood—increasing resistance to pull-out.

UPPER RIGHT
Cleats are mitered or tongue and groove, depending on product shipping conditions. Accurately cut and augmented with wire binding, they produce tight joints to stand maximum abuse.

BELOW
Typical of the Wirebound weight reductions achieved for the boiler company is this 29½ lb. crate which replaced the 75 lb. box shown below.



Like so many other manufacturers, a well known manufacturer of heating equipment* found that Wirebound Boxes and Crates brought savings obtainable with no other shipping container! Box weights were reduced 33%; over-all shipping room savings were 25%; storage requirements were slashed 80%; container assembly and packing time were cut 50%.

Wirebound's unique construction principles will enable you to obtain similar benefits. Specifically designed for the product it is to carry, each Wirebound is composed of high tensile steel wires stitched to thinner wood for face material. Thickness of boards, arrangement of reinforcing battens and number and gauge of wires vary in accordance with the type and weight of contents.

This is only part of the Wirebound story . . . to learn all the advantages of Wirebounds use the coupon at right to request a copy of the free Technical Data Book or have a Wirebound sales engineer call to study your problems.

WIREBOUND BOX MFRS. ASS'N.
Room 606, 503 Market St., San Francisco 5, Cal.

☐ SEND COMPLETE LITERATURE
☐ SEND A SALES ENGINEER

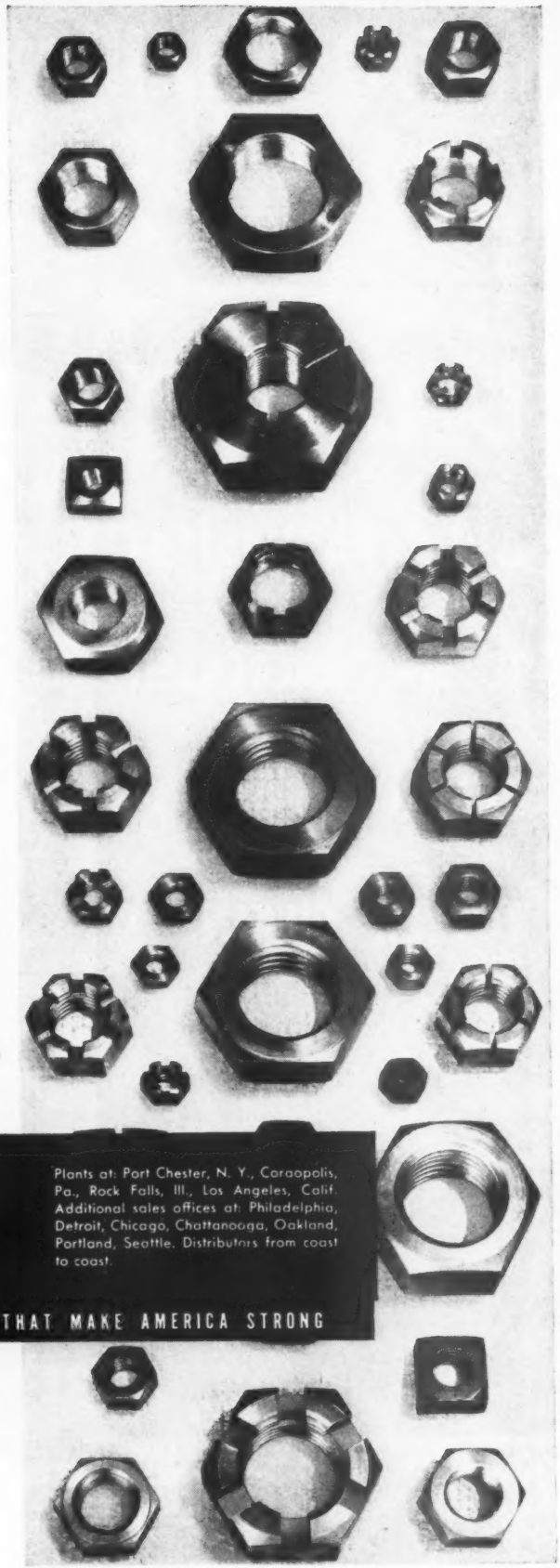
NAME
POSITION
FIRM NAME
ADDRESS
CITY ZONE STATE
PRODUCT

Wirebound
BOXES & CRATES

68 WIREBOUND PLANTS THROUGHOUT THE UNITED STATES

*Name on request

Maximum holding power per dollar investment—helps you get *True Fastener Economy*. The *dependability* of RB&W Nuts is the product of more than a century of continuous research and progressive development in nut manufacturing . . . backed by the skill of four generations of RB&W men and women.



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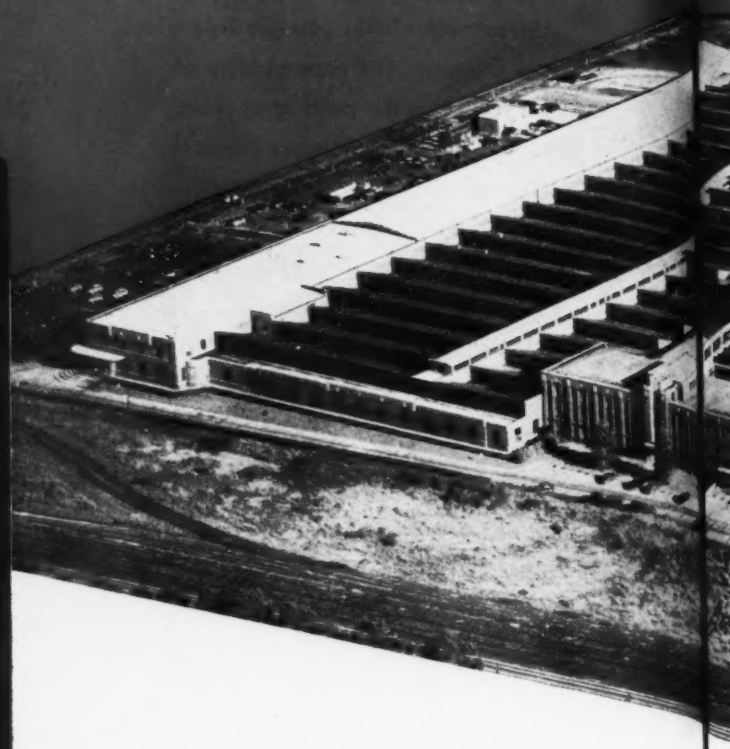
THE COMPLETE QUALITY LINE

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Oakland, Portland, Seattle. Distributors from coast to coast.

104 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

More Chain··Better Chain··



LINK-BELT

ADDS FACILITIES TO MEET INCREASED DEMAND FOR ROLLER CHAIN AND SPROCKETS . . . .

. . . . . .

Link-Belt's addition to its Indianapolis chain plant makes possible immediate shipment of precision steel roller chain and sprockets.

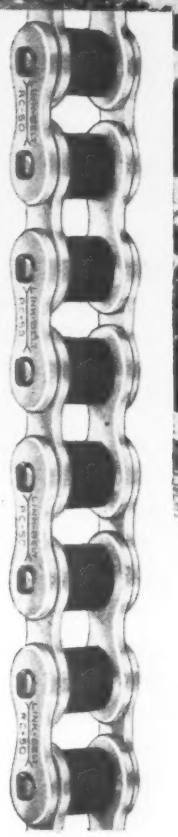
It is no longer necessary to substitute for roller chain. Flexible, positive, efficient Link-Belt Silverlink precision steel roller chain that will economically solve your power transmission and conveyor problems is now available.

Silverlink precision steel roller chain, due to special features, has shock absorbing resilience.

Link-Belt manufactures a type of chain for every power transmission and conveying function.

...When You Want It!

Ewart Plant of Link-Belt Company
Indianapolis, Indiana



Our unsurpassed facilities and engineering knowledge are at your service. Your inquiries are cordially invited. Get in touch with our nearest office.

LINK-BELT COMPANY

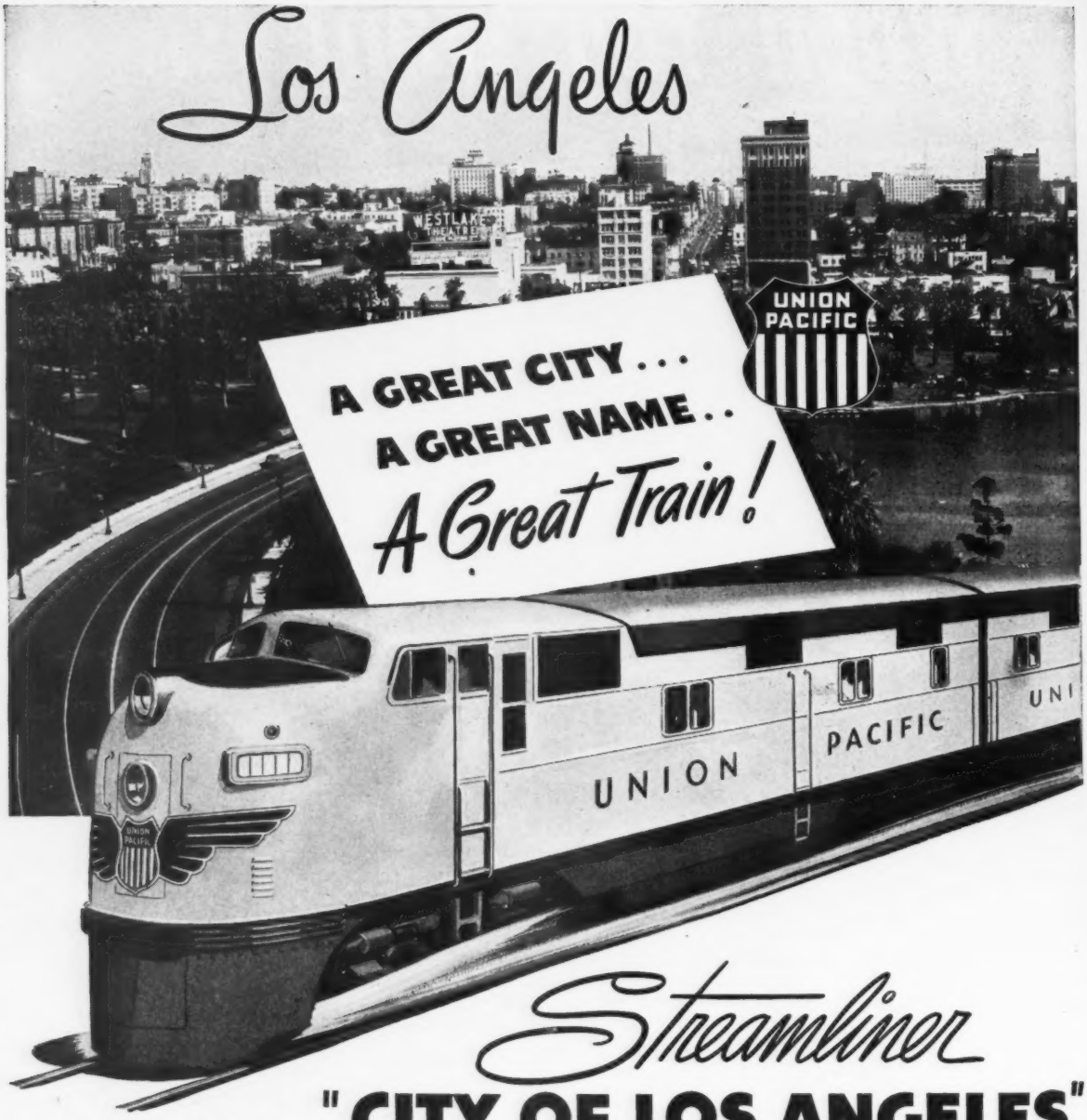
Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.

11,443

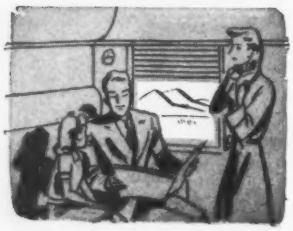
LINK-BELT CHAINS

FOR DRIVES • FOR CONVEYORS • FOR POWER TRANSMISSION

Los Angeles



Streamliner "CITY OF LOS ANGELES"



When traveling between Chicago and Los Angeles, enjoy the comfort and privacy of modern Pullman accommodations . . . relax in an attractive club car . . . partake of appetizing dining-car meals.

Also in daily service are Union Pacific Streamliners—

"CITY OF SAN FRANCISCO"
Chicago - San Francisco

"CITY OF PORTLAND"
Chicago - Portland - Tacoma - Seattle

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"CITY OF ST. LOUIS"
St. Louis-Kansas City-Denver . . . with through cars to West Coast

Pullmans and reserved Coach seats on all Streamliners

UNION PACIFIC RAILROAD
Road of the Streamliners

You Get GREATER ENGINE PROTECTION with T5X – *the famous purple* oil*

1. T5X—the remarkable purple motor oil—gives greater protection to any type of internal combustion engine in any industrial operation. This fully compounded, detergent-type oil easily passes the most demanding lubricant requirements—including the U. S. Army Specification 2-104b, the "L-4" Coordinating Research Council gasoline engine tests and the grueling 500-hour continuous-run Diesel engine test.

2. T5X is a highly refined, 100% pure, paraffin-base oil obtained from highest quality base stock. An exclusive detergent compound is added to this base stock that retards sludge formation to a remarkable degree. With T5X, oil lines, ring grooves and pistons stay clean far longer!

3. A special oxidation inhibitor in T5X greatly retards oxidation and gives high heat stability. A neutralizing agent protects against corrosion. Another ingredient suppresses foaming even under the most adverse operating conditions. With T5X, wear is reduced to a minimum!

4. T5X forms an extremely tenacious and enduring oil film on metal surfaces that gives maximum protection against scuffing and seizure. This tough film assures the greatest possible defense against rusting – even when engines are idle for long periods.

For full information on T5X phone your local Union Oil Representative or write Sales Department, Union Oil Company, Los Angeles 14, California.

ANOTHER

UNION OIL

SUCCESS-TESTED PRODUCT

*T5X gets its distinctive color from an exclusive ingredient that helps give the oil its remarkable stability.

"Maintenance

HOW G. P. SERVICE SAVES YOU MONEY

Equipment Survey–To analyze equipment and operating conditions, for proper recommendations. *Service Intervals*–Set up correct lube schedules. *Product Recommendation*–To insure use of correct products at specified periods. *Inventory Control*–Select minimum number of products necessary. *Storage*–Recommend proper storage and handling facilities. *Deliveries*–Establish schedule of deliveries to insure uninterrupted service.

Mobiloil
SOCONY-VACUUM

GENERAL

Cost Reduced 25%"

General Petroleum Products and Lube Engineering Service help maintain constant production, reduce the number of overhauls, and cut maintenance costs 25% for Burke Millwork Company of Seattle. On high-speed equipment, all lubricated with G. P. products, there have been no bearing failures in three years.

At Burke Millwork, as in many other western industrial plants, all lubrication is based on a plant survey by G. P. Lube Engineers, from which a schedule of products and service intervals is established.

One important saving is a reduction in the number of lubricants used, so that ordering, inventory and service are all simplified. In the Burke mill, Sovarex #1 meets nearly all grease requirements, while only one selected oil is needed as a general lubricant.

Production rates can be increased and maintenance costs substantially reduced in many industrial plants, through G. P. Lube Surveys.

Regardless of the size and nature of your business, it will pay you to let an experienced G. P. Engineer check your lubrication problems. Just call the nearest branch or distributor.

PETROLEUM CORPORATION

A BUILDER IN THE WEST SINCE 1898

Pays For Itself In 13 Weeks

Lumber-Handling Crane

It did not take long for a Cleveland Tramrail crane to pay for itself at the Acme Box Company, Inc., Baltimore, Maryland, an important manufacturer of various type boxes specializing in beverage cases. In fact, in just 13 weeks the entire cost of crane, runways and erection was absorbed because of the efficiency that was introduced in the handling of lumber.

Some 10,000 to 12,000 feet of rough lumber, 12 feet in length, is handled per 10 hour day. The crane places the lumber on the saw table from which it is run through the saws. It is here that more than 80 hours of time are saved per week because a large load of lumber is handled to the table at one time whereas formerly it was handled singly, board by board.

The grab has chains suspended from each of its four corners. Lumber is carried by two load bars which are threaded into the chain links. Although 500 feet can be handled at a time, the illustration shows the grab with a half load.

The crane is hand-propelled and of one ton capacity. The hand-propelled trolley has a double-drum electric hoist with two hooks each having ½ ton capacity.

GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
8839 EAST 284th ST. WICKLIFFE, OHIO

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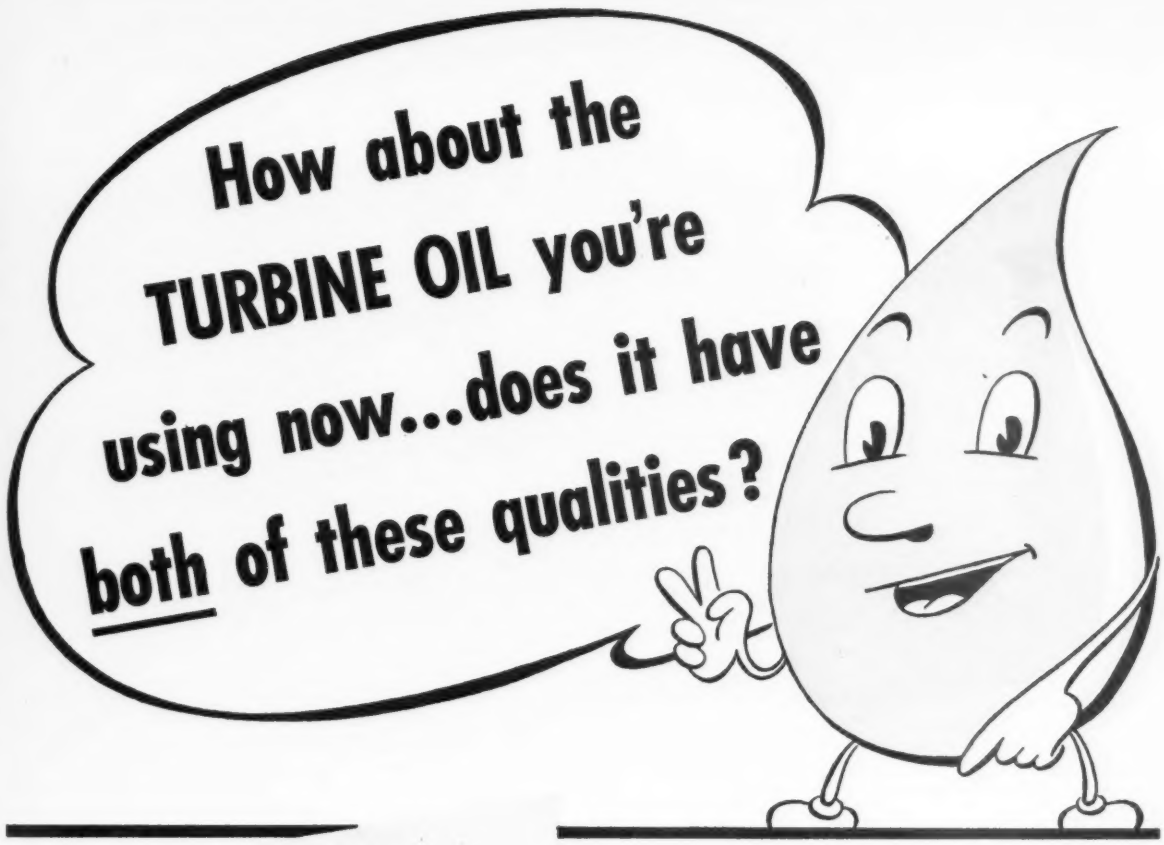
OVERHEAD MATERIALS HANDLING EQUIPMENT



SHELL TURBO OIL

SHELL

● Ordinary oils are no match for either of the two worst enemies of turbine lubrication — sludge and rust. The ability to withstand those enemies is present only in oils custom-made for turbine lubrication.

SLUDGE RESISTANCE IN SHELL TURBO OIL — to make turbine oil, Shell selects only crude stocks which are naturally high in sludge resistance (oxidation stability). Then after special refining, Shell Turbo Oil is fortified with Shell-developed additives... to build up even greater resistance.

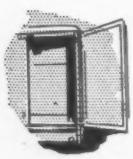
RUST RESISTANCE IN SHELL TURBO OIL — comes from another compound developed by Shell. It is this agent which gives Shell Turbo Oil its exceptional metal-wetting ability and its tough, airtight film.

The care in manufacturing Shell Turbo Oil pays off for users. Case histories prove that. After *years* of service, no deterioration of the oil, no sludge nor rust anywhere in the oil system — that's the kind of performance this outstanding oil has delivered in installations of all types. Isn't that the kind of performance you want?

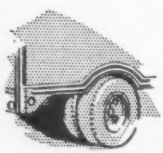
Prompt Delivery When You Specify FRUEHAUF TRUCK BODIES

No Extras to Buy!

1 Interlocking construction of coin-pressed roof seams "seals out" dust, dirt, and water.

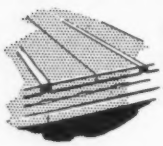


2 Precision-built metal doors. Exclusive "one-piece" weld construction. No nuts, bolts or moving parts to loosen or rattle.

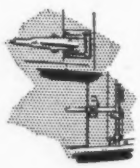


3 Wheelhousing models as illustrated here or straight-frame style as shown above.

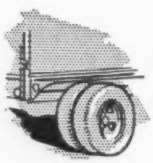
Hear Harrison Wood in "This Changing World"—every Sunday Afternoon over ABC. Consult Your Local Paper!



4 Welded floor channels give floor board extra strength without extra weight.



5 Heavy-duty hinges with positive latching cam door locks of "Trailer" strength.



6 Deluxe lighting and reflectors are placed for positive clearance markings.

• Your Fruehauf All-Steel Truck Body can be mounted and your truck ready to go within a few hours of the time you place your order — often the same day.

You will find there are no "extras" to buy. Nothing to be added—this body is complete, ready for the road.

All parts are standardized. In case of damage, it is a simple matter to replace them. That's mighty important. When your truck is laid up awaiting body repairs, it costs you money.

These bodies are priced surprisingly low — much lower, in fact, than you would expect to pay for such top quality.

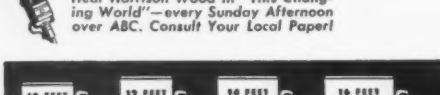
Fruehauf Factory Branches and Authorized Distributors, all over the West, stock and service Truck Bodies. Such service back of the name is an important factor in your selection of new equipment.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant, Los Angeles

Sales and Service — Los Angeles • San Francisco
Portland • Seattle • San Diego • Fresno • Sacramento
Spokane • Billings • Salt Lake City
Boise • Phoenix • Albuquerque • El Paso
Denver



FRUEHAUF TRUCK BODIES

Shipments that travel cross-country without leaving the room

You're looking at a railroad flatcar of standard truck and spring construction that's used by our engineers to pre-test methods of shipment protection.

As the wheels of this car rotate . . . at speeds up to 60 miles an hour . . . the test crates and cartons you see in the picture are subjected to the same type vibrations that cause chafing and "walking" of actual shipments.

From realistic tests such as this . . . and we conduct a wide variety, both in the laboratory and in the field . . . our engineers learn what *really* causes shipping damage. Then they translate that knowledge into better ways of bracing and packaging the products *you* ship.

If you would like to draw on this experience for the purpose of speeding your shipping room operations, cutting your costs and reducing damage claims, write—

SIGNODE STEEL STRAPPING COMPANY

458 BRYANT STREET
SAN FRANCISCO 7, CALIF.

440 SEATON STREET
LOS ANGELES 13, CALIF.

SIGNODE* *means*—

- Steel strapping
- Strapping tools
- Power strapping machines
- Special lithographed seals
- BrakemaN* plates
- Anchor plates
- Retaining strips
- Retaining doors

*Reg. U. S. Pat. Off.

SIGNODE* RESEARCH ASSURES BETTER SHIPPING PROTECTION

DUCOMMUN kept the Weather Records

as a public service from 1872 to 1896

Here is the Official Record of Los Angeles Weather Observations

Location — 527 Ducommun St., Los Angeles, Calif. Latitude 34° 03′ 10″ N. Longitude 118° 14′ 02″ W. Elevation of Ground 273′

Exposure — The location was the two story residence of Mr. Charles Louis Ducommun, built in 1872. Gauge was set on the N. W. corner of the parapet surrounding a flat portion of the roof about 8′ x 10′ in area. There were no other houses near and no trees nearly as high as the gauge.

The ground is practically level for one-half mile or more on all sides of the gauge.

The gauge was placed about 32′ above the ground.

Observer — The observer from Feb. 22, 1872 to June 30, 1895, was Mr. Charles Ducommun, who came to Los Angeles in 1849. Born in 1820. From July 1, 1895 to Dec. 31, 1896 the observer was his son, Mr. C. A. Ducommun.

Southern Californians checked with CHARLES LOUIS DUCOMMUN for Accurate Weather Information

Weather has always been important to Southern Californians. In the early seventies, Charles Louis Ducommun recognized that this county would eventually become the nation's leading agricultural producer. As a public service to the citizens Mr. Ducommun kept accurate records of weather conditions and rainfall from 1872 until 1877 when the Signal Corps of the U. S. Army took over the job. Mr. Ducommun's original equipment and observation station was taken over and used by the Signal Corps until 1896.

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In Our Mail Box

Corroborative Testimony

Editor, Western Industry:

We found your publication both interesting and useful. The Annual Review and Forecast number is particularly impressive. The news and statistics included in the section headed "The Western Outlook" are of especial interest to us both as source material and as corroboration of information received from our own field personnel.

O. B. RAILEY,
Research and Statistics
California Dept. of Employment
Sacramento, Calif.

Incentive Management

Editor, Western Industry:

I have read with interest the article on "Incentive Management," written by Mr. Thomas P. Pike for your February issue, and in my opinion, for what it is worth based on experience, he is certainly on the right track.

I trust that I can be forgiven for pardonable pride when I say that he is talking about things that we have been practicing in our company for many years. Some of our practices have gone even farther than outlined in the article.

A. L. HAWLEY
Works Manager
Plomb Tool Company
Los Angeles

Wants More

Editor, Western Industry:

We have found the review of industrial development trends in your January issue most interesting.

We suggest that you cover the same subject matter every six months rather than annually. We believe that this information would be of marked interest to everyone.

The most helpful information included in your January issue was the statistics included in your various sheets.

We feel that you are rendering Western Industry a definite service.

W. R. RAPPOLD
District Sales Manager
General Refractories Company
Salt Lake City

Missing the Point

Editor, Western Industry:

I believe that Professor Bond has wholly missed the issue which Congress must decide, unless his article (February, 1949, issue of *Western Industry*, regarding the basing point issue) is intended as an argument in favor of required f.o.b. selling. If intended as such, he has omitted virtually every argument made by the 125 witnesses who have appeared before this committee against f.o.b. mill selling.

Of course the basic void in Professor Bond's article is the assumption that the question involves only the use of the basing point system. This is but one small segment of the problem, which includes not only all phases of competitive freight absorption but all uniform national delivered prices (which I assume includes your magazine) as well as all uniform zone prices.

WILLIAM SIMON
General Counsel
Trade Policies Committee
United States Senate

(Continued on page 21)

EDITORIAL COMMENT

It Might Be Labor's Best Friend

TOO bad that labor does not seem to have found some impartial and competent economists and consultants whose advice can be sought in time of need. Then we would not have such spectacles as the State Federation of Labor in California getting all hot and bothered because the Associated Farmers are proposing to set up a strike insurance fund. The AFL were similarly disturbed a year or two ago on the occasion of an industrial strike insurance plan being launched in southern California.

To those who give the idea as little study as the AFL, strike insurance may seem like a perfect method by which employers may finance efforts to crush unions. Just take out insurance, then bow your neck against the union while the insurance people reimburse you for your down time and all the goods and services you don't sell. Or like taking out fire insurance and then getting a new house by making clever use of some oil-soaked rags and a match.

If the AFL would stop to do a little thinking themselves, or engage someone to do a bit of thinking for them, they would find it obvious that insurance organizations do not make any money by paying claims. Consequently people engaged in the insurance business would not willingly finance strikes if they could help it, any more than they would willingly finance fires or issue life policies to people in bad health or who have been threatening to commit suicide. Their profits are all made off customers who are good risks, either for health, fire hazards or industrial peace.

We are informed that the projected industrial scheme in Los Angeles was only to be open to employers with good labor history, and that in the event of a strike the employer, before being eligible to any benefits on his policy, must prove that he was taking sincere and active steps to end the dispute.

Some careful study by the AFL might reveal the fact that a strike insurance fund for employers might be one of the best friends labor ever had, because of its financial interest in promoting good labor relations.

To Scrap or Not to Scrap

ONLY top management can make the decision whether to scrap idle or obsolete equipment. Superintendents, foremen and maintenance crews may wring their hands over the fact that it does not earn its keep and will be still more useless as new and more efficient machines are introduced, but only the front office can say "Let's get it out of here, right now."

After the first World War industry did a good job of cleaning house of such equipment. Now there is much equipment on hand that took a big beating in the last war and in the immediate postwar rush which now seems to be leveling off. It will require an increasing amount of maintenance, and top management could well consider the desirability of junking it as their contribution to the national scrap drive being sponsored by the Department of Commerce and the steel industry.

Although the scrap situation is easing up a bit, it may well be remembered that cooperation by industry in this drive will lessen the drain on supplies of iron ore and thus help to hold steel prices down.

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MAIL BOX *(Cont'd from Pg. 19)*

Very Interesting

Editor, Western Industry:

May I say that we found your January issue of very great interest and have circulated it among our top officers in order that they might see what you are doing. I have also brought this to the attention of the Industrial Department of the Phoenix Chamber of Commerce. Congratulations on an excellent job.

HERBERT A. LEGGETT
Vice-President, Valley National Bank
Phoenix, Arizona

Western Panorama

Editor, Western Industry:

Your annual review and indeed your monthly reviews in *Western Industry* have always been of interest to me. It is impossible to pick out any one phase of the reviews as most significant. The value to me is in the panorama it gives of Western economic conditions.

HENRY J. KAISER, JR.
Henry J. Kaiser Company
Los Angeles

Information Service

Editor, Western Industry:

I firmly believe that one of our greatest difficulties in solving the problems of labor-management relations hinges upon our ability to supply accurate and adequate information to all concerned. To the extent that you are able to bring appropriate information to your readers through the pages of your publication you will unquestionably render a service to our enterprise system. Most of us know all too little about developments in this complex industrial problem.

H. C. MCLELLAN, President
Merchants and Manufacturers Assn.
Los Angeles

Very Interesting

Editor, Western Industry:

We are certainly interested in your labor section; in fact, we look over your magazine every month. We believe it is well to devote a section to labor and from my personal contact with the radio program "Out of The Fog," we believe it did some good in this area.

J. H. KITLAR
President, F. S. Harmon Mfg. Co.
Tacoma, Washington

More About Trucks

Editor, Western Industry:

We have read with a great deal of interest your article in your February issue called, "How Much It Costs To Ship By Motor Truck." It so happens that the article for us is most pertinent as we are at present attempting to analyze carefully the trucking costs of our own equipment.

We would appreciate greatly your mailing us the complete survey, or at least a more complete summary if this is available. We would naturally be very happy to pay any costs involved.

As to the very brief summary as it appears in your article, our main question would be as to whether the table on running costs per mile includes only operating costs, or whether it includes maintenance and depreciation costs as well.

In the event it is not feasible to mail us the more complete surveys, if it were not too much trouble we would greatly appreciate the answer to this one question stated above.

DOUGLAS S. JARDINE
Production Manager
California Consumers Corporation
Los Angeles, California

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UNITED STATES STEEL

THE WESTERN OUTLOOK..News...Statistics... 1

Spotty showing in Western area department store sales; Electric energy situation better in Pacific Northwest but ground levels in Fresno and Bakersfield area are worse than in 1931; Western steel mills increase production; Scrap picture brightens; Oil supply to be greater this year; Sugar markets very good; Lumber prices holding up well; Apparel market jittery

Commerce-Banking

DEPARTMENT store sales in the 12th Federal Reserve District in December were slightly above 1947, with a sharp increase only in the northern California area, while southern California was practically even up and Utah and southern Idaho were down. Demand bank deposits have declined slightly, but time deposits have risen. The decline in bank loans at the turn of the year was larger and more sustained than a year ago.

Carloadings in the Western states were off about 20 per cent for January as compared with last year, but freight received did not decline nearly as much. January carloadings in the Pacific Northwest were the lowest since 1938, 61,687 carloads, due to unfavorable weather conditions which brought log production to a standstill, to the Community Credit Corporation calling for very little of the stored grain which is under government loan, and to a softening in market conditions generally.

Business Activity Indexes in Per Cent of 1935-1939 Average
(Taken as basis of 100)

	Nov. 1948	*Dec. 1948*	*Jan. 1949*
[1]California	224.4	226.4	222.6*
[2]So. California	270.5	277.8	270.9*
[3]Pacific N.W.	217.9*		
[3]Puget Sound	210.7		
[3]Inland Empire	198.7		
[3]Lower Columbia area	236.4*		

1) Wells Fargo Bank & Union Trust Co. index, based on the following components: Industrial production, freight carloadings, bank debits, department store sales (weighted 4, 3, 2, 1, respectively, and adjusted seasonally).

2) Security-First National Bank of Los Angeles index, based on the following components and weights, and adjusted seasonally: department store sales, 15; building permits, 5; Los Angeles bank debits, 20; residential city bank debits, 5; agricultural city bank debits, 5; industrial employment, 20; industrial power sales, 13; railroad freight volume, 6; telephones in use, 7; real estate activity, 4.

3) Index compiled by Bureau of Business Research, University of Washington. Basis of compilation not indicated.

*Preliminary estimate.

Employment Picture

THAT hazy and uncertain industrial dilemma—to hire or not to hire, that's the question—is gradually but slowly composing itself into a more coherent although still somewhat misty form. As the snows start to melt and the grass grow, so does unemployment show a leaning toward tapering off and employment figures display signs of coming out of hibernation. April showers and May flowers will undoubtedly catalyze this economic metamorphosis.

Outdoor industries, particularly in the Pacific Northwest, suffered considerable production from an abnormally rigorous winter. But the long dry spell of unproduction and unemployment resultant has brought about an increased demand for the products which might otherwise have been supplying a non-saturated market. Now that these outdoor producers are again becoming able to supply demand, laid-off

(Cont'd on Page 25)

MANUFACTURING EMPLOYMENT

Estimated Number of Employees—Source: U. S. Bureau of Labor Statistics and State Agencies

	NEW MEXICO		ARIZONA		UTAH		NEVADA		WASHINGTON		OREGON		CALIFORNIA	
	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948
August	9,300	10,500	13,400	15,700	29,620	28,100	3,400	3,400	185,000	183,150	.....	154,300	760,200	770,900
September	9,100	10,350	13,800	14,400	30,820	32,700	3,400	3,500	186,650	190,450	.....	151,800	744,800	799,600
October	8,850	10,100	....	15,100	30,170	31,000	3,500	3,400	183,900	191,600	137,600	145,000	736,400	767,600
November	8,550	10,150	14,600	15,500	31,500	30,300	3,500	3,400	178,400	185,950	.. ...	137,800	717,700	835,900
December	8,600	9,900	12,900	15,500	26,893	28,200	3,300	3,300	174,550	176,900	126,800	126,700	715,100	725,100
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
January	8,350	9,500	14,700	14,300	25,147	26,500	3,300	3,200	169,450	163,500	... ..	109,700	705,000	702,800

INSURED UNEMPLOYMENT

(Under all programs: figures in thousands. From Social Security Board)

Week ending	Ariz.	Colo.	Idaho	Mont.	Nev.	N. Mex.	Utah	Wyo.	Total Mtn.	Calif.	Ore.	Wash.	Total Pacific
August 28	4.8	3.5	.9	.9	1.1	2.0	2.9	.3	16.4	164.9	7.7	19.9	191.6
October 2	4.3	2.2	.5	.7	1.2	1.2	2.1	.2	12.4	148.6	7.8	20.3	176.7
October 30	4.4	2.2	.6	.8	.8	1.5	4.1	.3	14.8	146.6	10.5	20.9	178.0
November 27	4.9	4.6	2.2	1.7	1.9	1.8	5.8	.5	23.4	199.9	18.8	34.3	253.0
January 1	6.8	8.9	8.2	5.8	2.4	3.6	9.2	1.4	46.3	249.7	37.3	58.6	345.6
January 29	10.1	11.4	12.2	9.6	3.5	6.1	12.5	2.5	67.9	317.8	58.1	77.6	453.5

INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th Fed. Res. Dist.		Southern California		Northern California		Portland Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948
July	331	365	363	411	291	318	329	382	341	344	313	382	350	334	404	464
August	353	383	401	454	307	326	326	380	359	340	350	385	361	352	440	487
September	347*	355	392	404	299	324	322	341	359	309	363	362	337*	329	459	473
October	342*	336	379*	374	293	297	341	346	364	307	362*	369	343	330	457	467
November	347	323	383	341	303	291	341	328	354	336	375	366	360	326	488	452
December	363*	368	403*	404	322	338	350	355	366	373	382	383	358	342	493*	496

*Revised

INDEX NUMBERS OF WHOLESALE PRICES BY GROUPS OF COMMODITIES AND BY MONTHS

Bureau of Labor Statistics, Washington 25, D.C.
(1926 = 100)

Year and Month	Farm Products	Foods	Hides and Leather Products	Textile Products	Fuel and Lighting	Metals and Metal Products	Building Materials	Chemicals and Allied Products	House Furnishing Goods	Miscellaneous	ALL COMMODITIES
1948 Yr. Avg.											
August	191.1	189.5	188.4	148.5	136.6	170 8	202.8	132.0	145.4	119.6	169.4
September	189.1	186.3	187.5	147.8	136.7	171.9	203.9	133.3	146.1	119.9	168.5
October	182.2	177.3	185.5	146.8	137.2	172.4	203.3	134.4	147.4	119.0	165.0
November	180.8	174.3	186.2	146.1	137.3	173.3	202.9	133.2	148.2	119.2	163.9
December	177.3	170.2	185.3	145.3	137.0	173.8	202.0	130.5	148.4	118.5	162.2
1949											
January	172.5	165.8	184.8	146.0	137.0	175.9	202.2	125.7	148.2	117.3	160.6

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1949

(Continued from page 23)

workers are deserting the unemployment rolls to resume their places in industry.

We should not be misled by statistical figures advanced by so-called "economists." While the country as a whole has at present the largest postwar number of unemployed, that number expressed as a percentage of present population is considerably smaller than it was before the war, indicating a healthy economy. And though these "economists" had us worried about February's postwar unemployment record — they neglected to mention that February's employed figure was the largest in history.

In short, the "economists" seem to be more disturbed than the industrialists, who are even now girding for the economic battle of '49 as their season rolls around.

CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics
100 = 5 yr. Avg. 1935-39

	Los Angeles	San Francisco	Portland	Seattle	Denver
May 15	169.1	....	....	174.3	....
June 15	168.8	174.2	...	....	....
July 15	170.3	....	180.3	....	172.5
Aug. 15	171.0	....	....	176.2	....
Sept. 15	171.0	177.1	....	....	....
Oct. 15	171.8	....	180.1	....	171.0
Dec. 15	172.7	176.7	....	....	....
Jan. 15	172.7	....	178.8	....	171.0

Electric Energy

Operating conditions in the Pacific Northwest began to be better around February 1, after a tough spell when the stream run-off was practically stopped by freezing weather. After February 1 the run-off was 10 percent above normal for the Columbia Basin, 25 percent above in the Willamette Valley and 132 percent in the upper Snake River. At the same time the load dropped because of warmer weather, load reductions in the form of "brownouts" became no longer necessary and the aluminum plants picked up some of their interruptible service.

Conditions in northern California are fair, but rainfall up to early March was below normal and snow pack only fair. Storage in mountain reservoirs was up pretty well, however, and new steam plants were being completed on schedule. On the other hand, if ground water levels go down, pumping loads will draw heavily on electric supply. The levels are reported to be the lowest on record in the Fresno and Bakersfield area, worse even than the bad year of 1931.

BANK LOANS

Industrial, commercial and agricultural
(In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

1948	
August*	2,108
September	2,160
October	2,184
November	2,252
December	2,297
1949	
January	2,265

*Includes 3 days of preceding month.

BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average month, all member banks in 12th Federal Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

	Net Demand Deposits	Time Deposits
1948		
August	8,834	6,009
September	8,950	6,004
October	8,937	6,012
November	8,930	6,014
December	8,998	6,008
1949		
January	8,959	6,086

NATURAL GAS
(CALIFORNIA)

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

	*Utilization (in thousands of cubic feet)				
1948	Domestic and Commercial	Industrial	Domestic and Commerc'l Sales	Industrial Sales	Electric Generation	Net Receipts from Producers
April	2,417,506	5,473	23,369,063	11,242,979	2,909,873	36,848,677**
May	2,424,637	5,518	16,846,280	12,944,257	3,123,625	34,448,763**
June	2,428,429	5,543	14,048,039	13,194,978	3,580,452	30,910,658**
July	2,432,404	5,562	10,794,515	12,879,704	5,806,696	32,067,040
August	2,445,107	5,579	9,839,589	14,071,645	6,577,345	34,802,159
September	2,457,056	5,655	10,221,079	15,029,958	8,128,570	35,946,359

*Utilization figures do not include company use, storage, and unaccounted for.
**Includes figures from Texas.

ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1947	1948	1947	1948	1947	1948	1947	1948
July	1,342,747	1,558,236	1,382,030	1,663,475	1,911,232	1,946,914	2,293,262	3,610,389
August	1,296,208	1,500,992	1,445,637	1,722,841	1,890,554	2,061,250	3,336,191	3,784,091
September	1,277,108	1,473,455	1,428,510	1,699,765	1,761,157	1,859,470	3,189,667	3,559,235
October	1,260,471	1,376,602	1,575,071	1,803,868	1,726,821	1,817,105	3,301,892	3,629,973
November	1,260,982	1,418,988	1,595,287	1,791,107	1,602,374	1,752,738	3,197,661	3,543,845
December	1,400,439	1,488,417	1,717,793	1,939,865	1,693,604	1,887,966	3,411,397	3,827,831

*Revised.

IRON AND STEEL

Western Area of the United States
From American Iron and Steel Institute (in net tons)

	Pigiron Output	Percent of Capacity	Steel Output	Percent of Capacity
August	163,319	73.8	374,342	87.1
September	168,534	78.8	360,252	86.8
October	188,238	85.0	413,721	96.3
November	209,571	97.8	428,986	103.1
December	216,958	98.3	425,969	99.4
January	232,437	93.9	436,216	97.6

Alloy Steel

	Output	Carbon Ingots, Hot Topped*
August	4,848	6,388
September	3,553	6,119
October	6,879	10,916
November	4,995	13,593
December	5,357	10,242
January	7,706	9,096

*Included in total steel.

Southern California is in good supply condition, with surplus available for export to northern California still available and run-off on the Colorado River up to normal. Demand for the whole state is still close to supply, however.

Steel

Supply continues to ease up, with even some softening even in sheets, although pipe and plates continue as tight as ever. Scrap picture grows steadily brighter. Production of household appliances catching up with demand and slowdowns in automobile manufacture due to changeovers for new models seem to be the main cause for slackening of demand.

(Continued on page 27)

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings		Received from Eastern Connections	
	1947	1948	1947	1948
August	728,578	622,139	381,068	332,008
September	825,668	505,545	404,771	273,876
October	701,972	531,796	382,413	297,854
*November	601,949	559,768	324,783	325,125
December	376,697	327,037	219,485	202,400
	1948	1949	1949	1949
January	515,433	423,684	272,131	242,340

*5-week period.

WHOLESALERS' SALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

MOUNTAIN

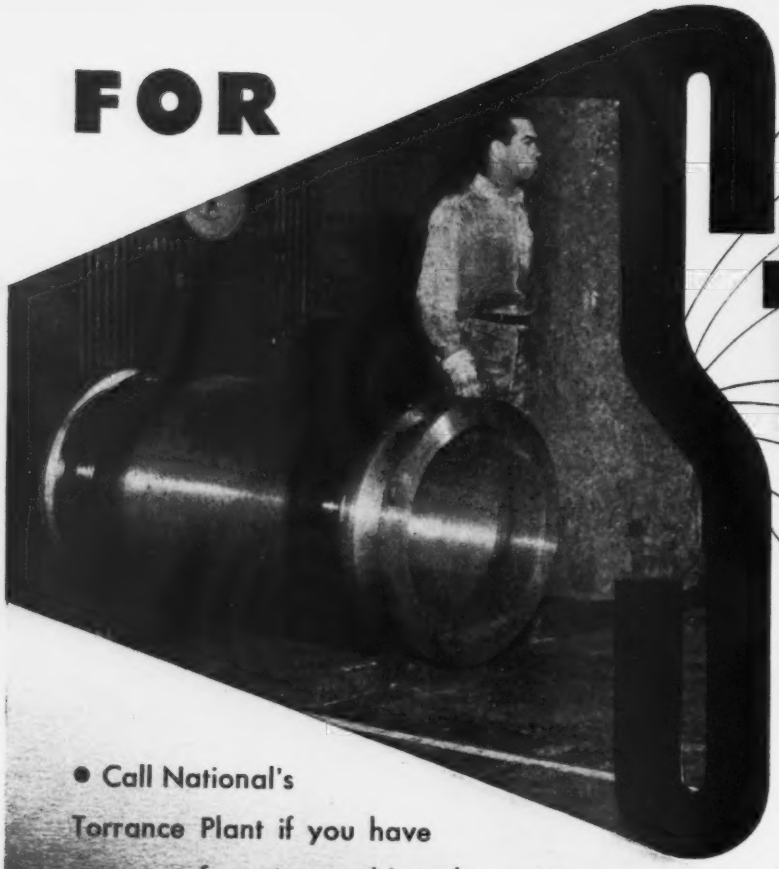
	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm prod.	Change	General Hardware	Change
July	811	+ 7	3,731	+ 22	...	....	....	....	2,565	+26
August	752	+10	3,583	+ 36	242	—10	....	....	....	....
Sept.	727	+12	4,266	+ 29	...	....	....	....	....	....
October	1,098	— 1	3,633	+ 16	471	+ 1	....	....	2,483	— 5
November	842	+ 3	4,339	+ 29	477	+13	....	....	....	....
December	318	— 1	3,573	+ 10	300	—15	....	....	1,766	+ 6

PACIFIC

											Industrial Supplies	Change	Lumber & bldg. mat.	Change	Mch. equip. and supplies excl. elec.	Change	Metals	Change
July	2,686	— 5	12,965	+ 14	1,435	+ 18	8,395	....	7,016	+ 8	522	+ 2	1,015	+37	902	+ 8	...	....
August	2,181	+ 6	13,740	+ 23	303	+ 13	10,377	....	6,043	+41	2,324	+24	1,721	+38	...	....	...	....
Sept.	2,148	— 4	17,422	+ 27	315	+ 5	4,507	....	7,439	+ 4	2,080	+28	1,470	+10	...	....	...	....
October	2,879	—11	14,094	+ 13	1,926	— 3	6,174	....	6,995	— 3	2,252	+ 7	1,403	— 6	442	—22	...	....
Nov.	2,644	— 9	12,860	+ 13	336	+ 2	9,487	....	5,664	— 9	2,138	+25	....	....	517	— 8	...	....
Dec.	1,705	— 5	11,662	— 12	366	— 2	4,364	....	3,898	— 3	360	— 5	...	....	415	—29	...	....

*Full-line wholesalers.

FOR Steel



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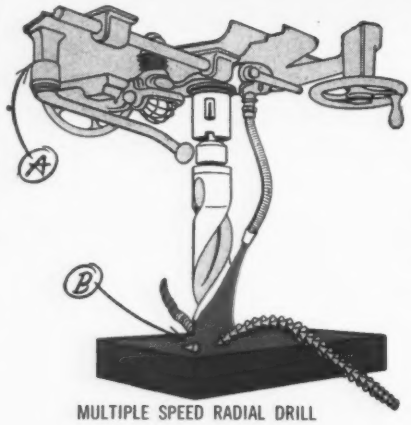
THE NATIONAL TUBE CO. IDEAL ALLOYS

Case 1146—Selecting the Correct Cutting Fluid



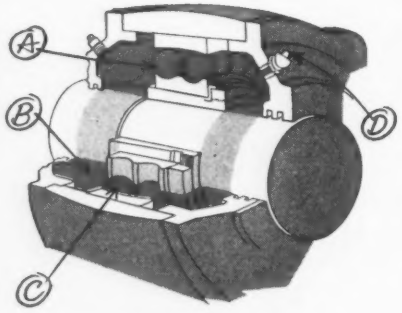
MULTIPLE SPEED RADIAL DRILL

In tests on machine tools of all different types, the Calol Cutting Fluid recommended for each operation produced fine surface finish on work. This is because recommendations for Calol Cutting Fluids are made from actual working results — tests made on a special drillpress, the Drilling Torque Tester — and the results recorded by electronics. Calol Cutting Fluids come in four general classes: mineral oils, ready-mixed compounded oils, concentrates and soluble oils.

A. Made for every machining operation — from toughest broaching to simple grinding.
B. Lubricating, cooling and flushing qualities assure longer tool life and better work finish.

Calol Cutting Fluids also give maximum rust protection to machine tools and work. The soluble oils in the line mix with water easily and form strong, stable emulsions.

Case 1147—Lubricating Bearings Carrying Extreme Loads



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In tests by a bearing company, Calol E.P. Roller Grease carried bearing loads in excess of 20,000 pounds per square inch, more than twice the load-carrying capacity of ordinary greases. For anti-friction or plain bearings. Comes in three grades and two types: Nos. 0, 1X and 2X. The "X" type has additional compounding to impart extra stringiness, and extra adhesiveness to withstand washing action of water.

A. Extreme-pressure additives assure lubrication under extreme shock load conditions.
B. Resists extreme temperatures — has lubricated satisfactorily in bearing temperatures of more than 200° F.
C. Non-corrosive to any bearing metal . . . will not harm rubber, neoprene or plastic bearing seals.
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CALOL

FOR EVERY NEED A **STANDARD OF CALIFORNIA** JOB-PROVED PRODUCT

(Continued from page 27)

Department of Commerce Field Service reports that raw materials for paint manufacturing will continue in heavy demand, while supplies, excepting chemical pigments, would be adequate.

Aircraft

Barring unexpected cutbacks, like those just experienced, military plane production in 1949 is expected by the industry to continue at about the same level as now, or somewhat above 3000 units.

Transport craft output is expected to run about level until late in the year, when current orders are completed. Deliveries of 135 planes are definitely scheduled, with a possible addition of 40 to 100 more.

Personal plane production may climb somewhat above the 1948 rate, which averaged about 600 a month.

A CAA study of registered aircraft showed that late last year, the U. S. had 97,619 planes, an increase of 4975 over 1947. Of the total, 48,930 were of postwar manufacture. U. S. pilots now number about half a million; U. S. airports, 6100, as against 5200 a year ago.

The past year was a year of reconstruction for U. S. airlines. Total revenues were $643,000,000, up 13 percent over the preceding year; operating costs meanwhile rose but 10 percent. This improvement did not, however, put the lines out of the red—net loss was $6½ million—but the trend now is toward profitable operation, aided by higher mail pay rates.

Pan American has taken delivery of the first of 20 double-deck, 75-passenger Boeing Stratocruisers — the largest commercial land plane, utilizing technical advances brought out in the B-2, B-29, B-50 and C-97 Stratofreighter. The huge clippers, costing $1,500,000 each, will go into trans-Atlantic and trans-Pacific service.

Sugar

Cane sugar is very active for this time of year, with markets good and the California & Hawaiian Sugar Refining Company plant at Crockett, Calif. running at absolute maximum through the winter, an unheard of event. Usually the big rush is only from April to September. Situation this year due partly to waterfront strike last fall, which interrupted shipments from Hawaii for many weeks. C & H will reopen this season the refinery in San Francisco which they purchased from the Spreckels interests last year but did not utilize.

The Hawaiian crop is estimated at 900,000 tons of raw, larger than the 1948 crop by 50,000 tons. All of it will be refined in California this year; last season some of it was shipped through the Panama Canal to eastern and gulf refineries on account of the strike. A larger proportion will be shipped in bulk than ever before.

Movement of refined sugar, both cane and beet, has been higher this year than last, considerable sugar having been bought in January and early February. California beet acreage is expected to be less than in 1948.

Flour

Mill feeds are strong, especially for fairly prompt shipment, as a result of the light flour grinds caused by the dull market.

Approximately 45,000,000 bushels of the Pacific Northwest's 1948 wheat crop—40 percent of the harvest in Oregon, Washington and northern Idaho — has been "locked up" until April 30 under government price support programs.

About 85 percent of the total is under loan, the rest covered by purchase agreements. Loans will mature April 30, which also is final date for farmers holding purchase agreements to exercise their option to sell grain to the government at the support price.

Apparel

Every apparel market in the country is in a jittery, nervous condition. Now that the storm signals are out, manufacturers are marking time, waiting to see what the public is going to do. No pickup is expected until the seasonal upswing after Easter.

Retail sales in some lines and in a few areas are picking up, but no one knows how much this represents a reflex from the bad winter dislocations. A few firms are doing extraordinarily well, while others whose stocks or policies don't fit current whims of the buying public are doing virtually nothing. Curiously, best sales volume is being recorded in the very cheap and the extremely high-price fields.

These spotty conditions are inducing still more cautious buying policies by the retail and wholesale trade. Firms that customarily have ordered five to six months ahead are now buying for only 60-days ahead. Some nervous ones ask for a three-week delivery.

Lumber

Log prices have held up very well, because of the West's worst winter in 56 years, which brought logging to a virtual standstill through the western half of Oregon and Washington. Deep snows, two and three times normal depths, may delay reopening of many logging camps. Hundreds of small sawmills were closed because of a shortage of sawlogs. Most large mills and medium sized mills have been operating from cold deck log storage, but these supplies may be exhausted before log input can be resumed.

Pulp and Paper

Most of the industry on the Pacific Coast has been operating on a seven-day basis for years, but a drop to six days is believed by some observers to be close at hand, in view of the fact many paper items formerly on ration are now only in normal demand.

(Continued on page 31)

PULPWOOD
(Pacific Northwest)
(Cords of 128 cu. ft., roughwood basis, Source: Bureau of Census)

	Receipts	Consumption
June	253,075	242,906
July	378,355	275,293
August	426,462	297,414
September	415,948	276,059
October	402,835	294,824
November	266,617	270,353

STRUCTURAL CLAY PRODUCTS

	UNGLAZED BRICK (in thousands of standard brick)		UNGLAZED STRUCTURAL TILE (short tons)		UNGLAZED CLAY SEWER PIPE (short tons)	
	Mountain	Pacific	Mountain	Pacific	Mountain	Pacific
July	11,405	31,389	3,389	2,832	2,369	15,022
August	11,474	31,178	2,232	2,374	2,576	15,022
Sept.	16,668	23,813	3,892	2,278	2,367	15,340
October	15,964	31,230	2,780	2,662	2,537	15,642
November	12,202	23,662	3,059	3,025	2,181	15,233
December	10,854	19,003	3,311	2,652	2,569	14,050

CEMENT
(In thousands of bbls.; from U. S. Bureau of Mines)

	—California—		Oregon - Wash.		Colo.-Wyom. Mont. Utah - Idaho	
	1947	1948	1947	1948	1947	1948
June	1,948	2,087	522	609	492	450
July	1,902	2,128	552	726	487	497
Sept.	1,931	2,152	585	676	435	486
Oct.	1,964	2,320	589	639	431	591
Nov.	1,969	2,078	462	591	418	610
Dec.	2,015*	1,890	517	500	387	507

*Revised.

APPAREL
(In thousands of dollars)

Total Women's, Misses' & Juniors' Outerwear

1947	Los Angeles	San Francisco
July, August, September	23,245	6,699
Oct., Nov., Dec.	24,948	6,844
1948		
Jan., Feb., March	30,173	7,897
Apr., May, June	19,052	4,521
July, Aug., Sept.	26,502	7,603

	Men's Overalls (thousands of dozens) California	Men's Wool Work & Dress Trousers (thousands of units) California
March	33.0	109.6
April	29.0	92.6
May	27.7	86.3
June	30.4	76.1
July	26.2	66.5
August	30.5	95.1

LUMBER
(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

Year through January	1947	1948	1949
Production	633,107	745,214	485,465

From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):

Year through January	1948	1949
Production	211,526	145,728

From California Redwood Ass'n figures (includes redwoods and whitewoods):

Year through December	1948
Production	470,176

SOFT PLYWOOD
From Bureau of the Census
(In thousands of square feet)

	1947	1948
July	107,588	122,386
August	137,042	174,062
September	147,823	181,567
October	170,769	184,860
November	144,637	174,243
December	150,853	157,748

WHEAT FLOUR
(In thousands of sacks; from Bureau of the Census)

	Ore.-Wash.	Montana	Utah	Colorado	California	Total
June	1,427	295	317	481	366	2,886
July	1,664	344	289	424	379	3,100
August	1,616	367	343	495	355	3,176
September	1,475	340	324	450	331	2,920
October	1,405	332	349	496	325	2,907
November	1,550	288	314	462	329	2,943

CONFECTIONERY AND COMPETITIVE CHOCOLATE PRODUCTS
(From Bureau of Census)
(In thousands of dollars)

	COLO. - IDAHO - UTAH		— WASH. - OREGON —		— CALIFORNIA —	
Month	Sales	Per Cent Change from 1947 For Year to Date	Sales	Per Cent Change from 1947 For Year to Date	Sales	Per Cent Change from 1947 For Year to Date
August	359	—16	398	—28	1,982	+2
September	593	— 8	599	+15	2,156	+3
October	808	+ 3	466	—24	2,929	+3
November	980	— 7	580	—11	3,253	+15
December	901	— 3	453	—13	2,669	— 7

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For This Boiler Room Piping, for example . . . as for any pressure or temperature condition . . . Crane offers an unequalled selection of valves, fittings, pipe and accessories. One catalog lists the entire line. One order to Crane results in fastest possible service. For Crane serves you through a network of well-stocked cooperating Branches and Wholesalers, also having direct access to large factory stocks.

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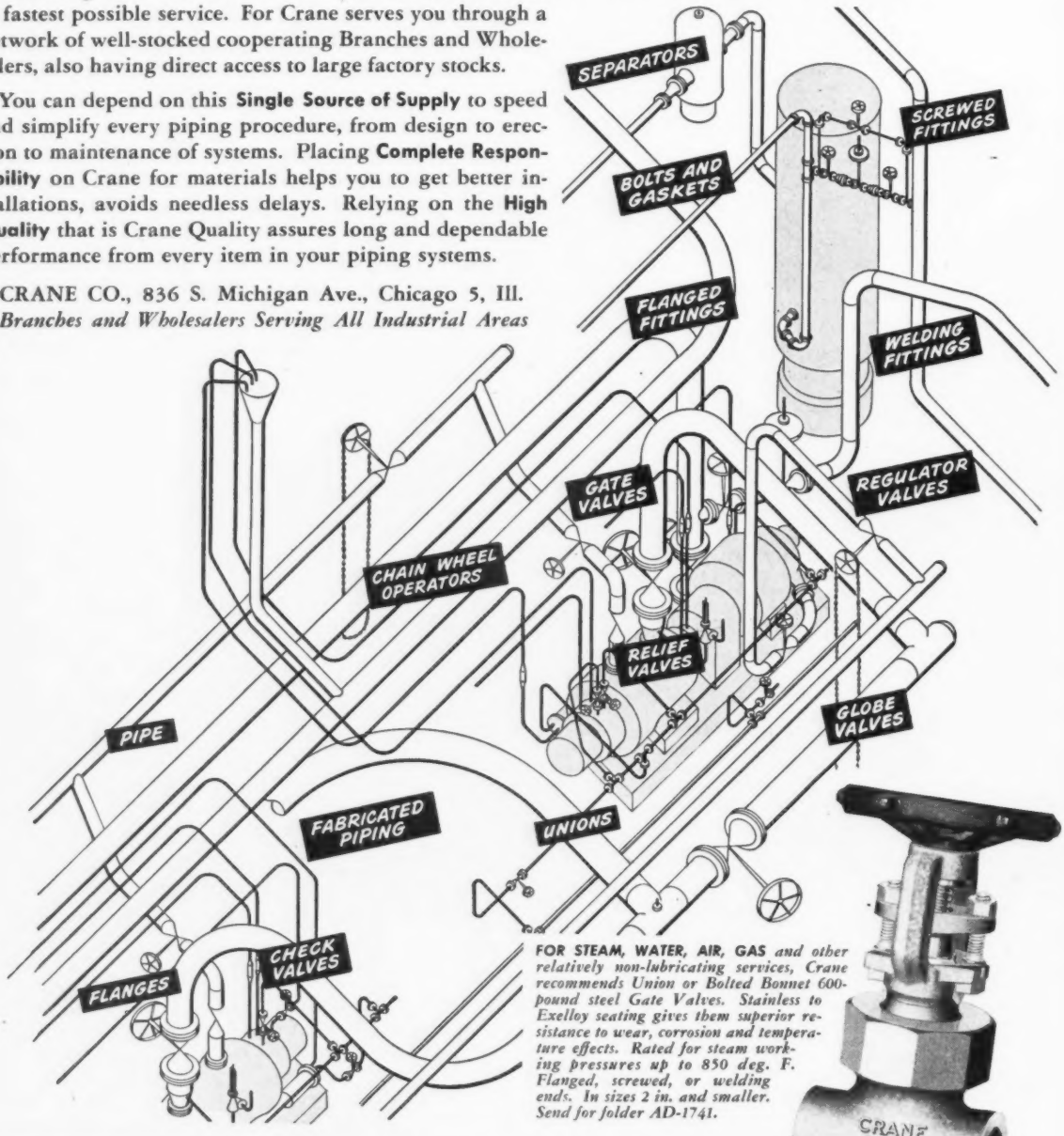

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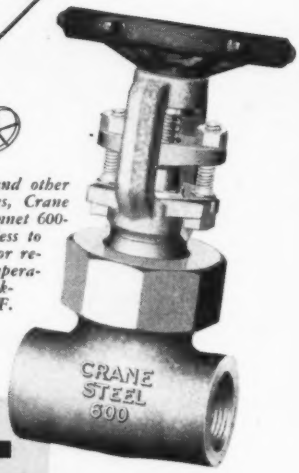

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PIPE • PLUMBING
AND HEATING

CRANE

FOR EVERY PIPING SYSTEM

THE WESTERN OUTLOOK (5)

(Continued from page 29)

Canning and Packing

California's frozen fruit and vegetable pack for 1948 of almost 140,000,000 pounds shows a big rebound from the 87,500,000 pack of 1947, but still under the 206,500,000 total for 1946. Western Frozen Food Processors Association report the figures as follows:

	1946	1947	1948
FRUITS			
Apples, Applesauce	26,817,991	1,592,406	2,217,518
Apricots	33,882,158	3,598,279	1,249,591
Bushberries (Others & Unclassified)	152,792	169,561	493,639
Blackberries	190,551	6,315	(a)
Boysenberries	4,133,965	8,341,642	6,178,859
Loganberries	656,223	449,035	3,188,947
Youngberries	1,522,020	760,233	568,321
Strawberries	3,916,119	8,306,041	12,977,902
Sweet Cherries	5,227,190	320,492	(§)
Nectarines	885,151	156,517	(§)
Peaches, Clingstone	5,383,898	582,897	(§)
Peaches, Freestone	21,130,000	4,136,521	3,762,644
Plums & Prunes	2,680,966	204,908	349,255
Miscellaneous	4,901,792†	938,156‡	2,934,448§
Total Fruits	111,483,816	29,563,003	33,921,124

NOTE: 1948 Citrus Juice incomplete and not included in this report.

*Included in Bushberries. Bushberries totaled 10,429,766 lbs.

†Citrus Juice (incomplete), Figs, Grapes, Mixed Fruit, Pears.

‡Banana Puree, Citrus Juice (incomplete), Citrus Peel, Currants, Figs, Grapes, Melon Balls, Mixed Fruit, Oranges.

§Citrus Segments, Cling Peaches, Sweet Cherries, Fruit Salad, Grapes, Lemon Peel, Melon Balls, Nectarines, Pear Puree, and Quince.

	1946 (pounds)	1947 (pounds)	1948 (pounds)
VEGETABLES			
Asparagus	10,827,736	1,108,257	1,945,491
Beans, Baby Lima	4,259,961	3,543,033	6,038,659
Beans, Fordhook Lima	16,202,414	31,937,578	38,654,723
Beans, Snap & Wax	3,587,310	2,313,985	2,710,476
Brussels Sprouts	12,730,933	4,177,970	10,108,508
Broccili	17,052,922	6,051,119	18,636,363
Carrots	(†)	.....	6,676,639
Cauliflower	8,406,740	2,951,174	8,811,162
Peas	2,964,819	3,302,216	3,270,391
Spinach	10,070,283	1,935,111	7,608,646
Miscellaneous	9,106,211†	686,270‡	1,318,632§
Total Vegetables	95,209,329	58,006,713	105,779,690
Total Pack	206,693,145	87,569,716	139,700,814

†Carrots, Co n-on-Cob, Cut Corn, Mixed Vegetables, Blackeye Peas, Peas and Carrots, Pumpkin and Squash, Rhubarb, and Tomatoes.

‡Celery, Corn-on-Cob, Rhubarb, and Tomato Juice.

§Corn-on-Cob, Peas and Carrots, Bell Peppers, Mixed Vegetables, Rhubarb and Succotash.

Hunt Foods caused a temporary flurry a few weeks back by some sharp price cuts, but these did not seem to affect the market as a whole, and the canned fruit and vegetable situation remains fairly stable.

Sardine pack for California for the season ended Feb. 1, was 2,785,207 cases, more than double the 1,271,224 cases a year ago. Comparison by districts is: San Francisco Bay, 27,647 cases compared with 4,845 a year ago; Monterey, 702,387 cases, 225,088 a year ago; southern California, 2,055,173 cases, 1,041,291 cases a year ago.

Tuna buying by packers from fish boat operators resumed on $340 a ton basis after three months' strike.

All-Glass Fruit Juice Condenser

A fruit juice concentrator that can reduce a gallon of juice to two pints while retaining all of the normal flavor and color has been built by William F. Filz, a member of the research and teaching staff of the food technology department at Oregon State College.

Built entirely of glass, the apparatus permits observation of every step in the process from applying steam to a miniature "boiler" on through the distillation process where water and volatile aromatic compounds are taken off. So far as known this is the first all-glass concentrator built.

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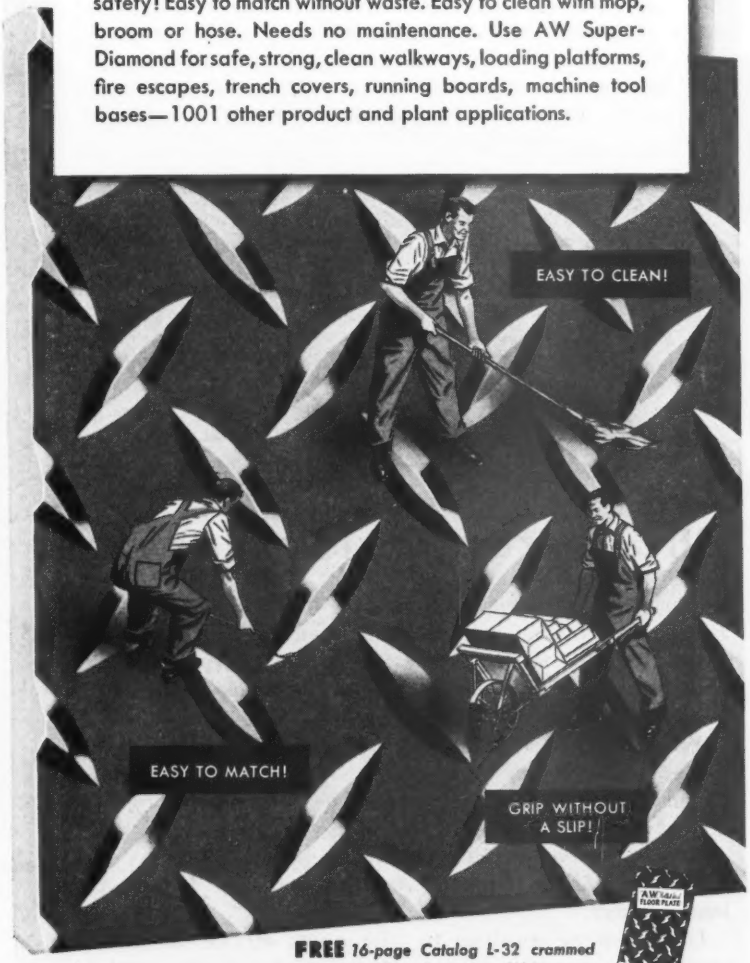

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THE INDUSTRIALIZED WEST

FURNITURE . . . *Western furniture manufacturing industry is keeping pace with scientific developments. Here is Los Angeles Period Furniture Manufacturing Company's 15,000 watt RCA high-frequency generator "cutting" the wet glue between thin sheets of veneer and molding the curved plywood all in one operation. Three-foot square panels are turned out at the rate of one every two minutes now; the outmoded clamp-and-natural-drying method used to take four to eight hours.*

What It Takes for a Greater Western Chemical Industry

By GEORGE L. PARKHURST
President, Oronite Chemical Co., San Francisco

DEVELOPMENT of the chemical industry depends on existence of all of four accessibilities: (1) raw materials; (2) energy sources, water resources and other utilities; (3) markets; (4) labor, capital, "know-how," and other human resources. These four requisites must be accessible not only in a physical sense, but also in an economic sense.

In the West all four are available. The basic question with regard to West Coast chemical industry is the probable rate of expansion as contrasted with the probable national rate of expansion. In order to evaluate this, each of the four accessibilities should be considered.

(1) Potentially, the West is in an extremely good position with regard to raw materials. Sulfur resources are meager, but there has become evident in the recent past a tendency towards production of sulfur from natural gas in the West, which may well make the Western states self-contain so far as sulfur is concerned. The chart further shows a deficiency in natural gas, but pipelines now in process of construction will largely overcome this deficiency.

We have in the West a raw material availability situation which is considerably better than that prevailing in the rest of the country as a whole.

(2) Chemical manufacture requires in most cases, vast quantities of water, not only for process purposes, but also for disposition of wastes. We have available industrial sites in the West where water is far less of a problem than in Eastern centers of chemical production.

Energy Requirements

Chemical industry, in varying degrees, requires tremendous quantities of energy.

In some instances electrical energy is desirable; in others, it may be needed as fuel. The West is in a peculiarly favorable long range position with regard to power. Our water power resources are by no means fully developed and are incomparably greater than those in the East. Our fuel resources are also adequate in short range, while in long range in terms of low and middle coal reserves, our situation is outstandingly good. Our advantage over the East, as shown in the chart, is striking.

A chart illustrating trend of electric power production compared with population shows conclusively that the West has preserved and increased its striking lead. Our advantage in terms of electrical power

GEORGE L. PARKHURST
President
Oronite Chemical Company, San Francisco

is of dominant importance in some industries.

Heavy fuel oil has traditionally been cheaper here than in the East. Though we have recently been going through a period of unsettled heavy fuel oil prices, the current monetary relationship may not be significant. In long range, it seems probable that historic relationships will prevail.

Thus, the West, in general, is in a good position with regard to the second "accessibility."

Markets

(3) Population of the eleven Western states, and particularly of the coastal area, has shown striking and sustained increases. This rate of growth in California, particularly, expressed by percentage, has been almost constant at 3.8 per cent for a century. What is regarded by some as a war boom in West Coast population is merely a continuation of a long-existing trend. A California population of 14,000,000 by 1960 is predicted by Professor Spurr of Stanford, who has recently published a monograph including these contentions.

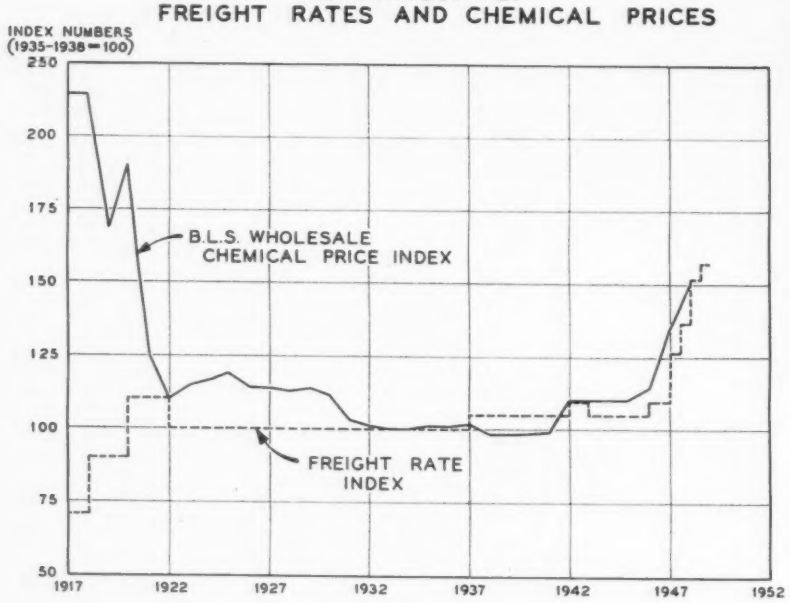
We thus have a population and a population growth trend in the West which will, in themselves, support a growing chemical industry.

Freight Rates

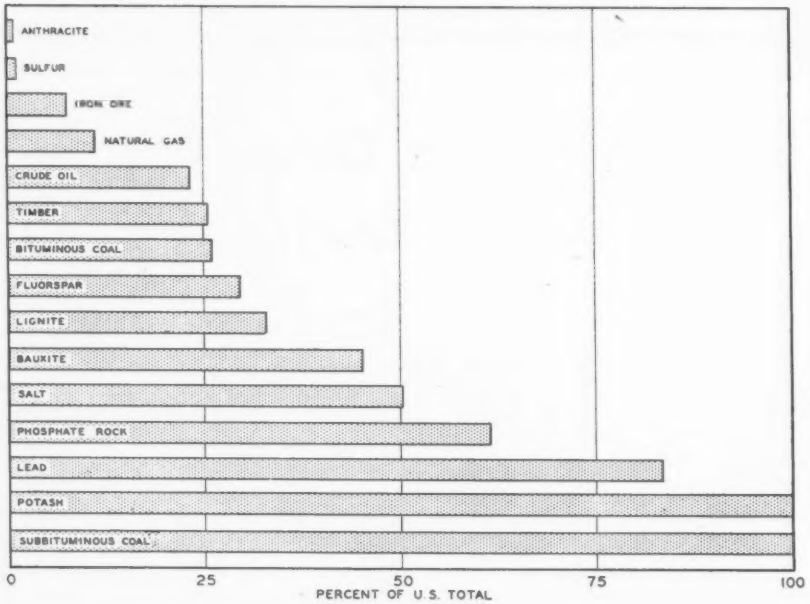
Postwar trend of freight rates has been very sharply upward, as shown in the accompanying chart. This increase has recently been more rapid than increase in the commodity index relating to chemicals. This trend is likely to be rather persistent since, if we are moving into a recessionary period, we can look for further drops in commodity prices, but are not likely to enter an era in which transportation costs can be materially reduced.

In fact, if total volume of goods moved continues to drop and labor costs cannot

COMPARISON OF
FREIGHT RATES AND CHEMICAL PRICES



REPRESENTATIVE MINERAL RESERVES OF THE 11 WESTERN STATES



be correspondingly reduced, there may well be continuing pressure from the carriers for rate increases. All of this tends to increase the barrier to movement of Eastern goods into the West, and makes our relative accessibility to the Western market greater than in the past while, by the same token, reducing the accessibility of the Eastern market to Western industry.

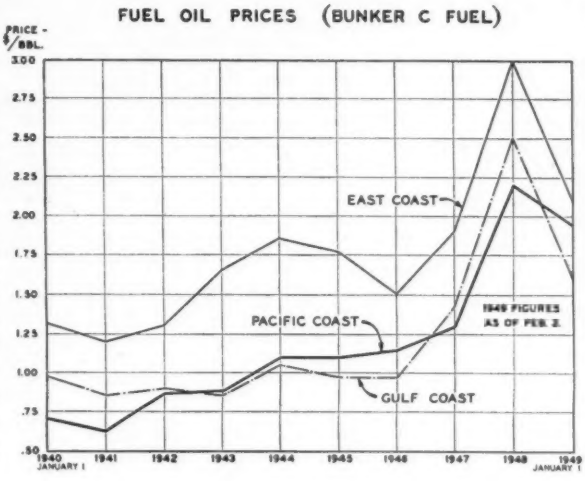
(4) Most of the Western centers of population are in good position with regard to labor resources. Wage rates are a little lower than in other parts of the country with the exception of the deep South. However, wage rates have tended rapidly toward national uniformity in recent years, and quality of the labor force has become increasingly important. I believe the quality of Western labor to be generally higher—and substantially higher than in other parts of the country.

Capital and "know-how" are very mobile sources and hard to confine within geographic bounds. We have had in recent years and in fact throughout the whole history of the West, a marked flow of Eastern capital and Eastern "know-how" into the Western area, and from judging by Federal Reserve district charts showing deposits we are decreasingly dependent upon Eastern capital.

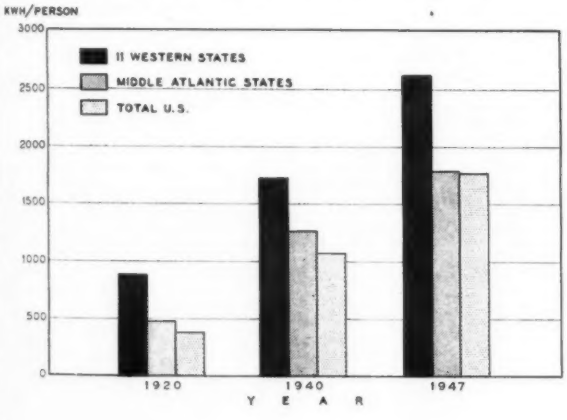
Thus we have in the Western states all "accessibilities" requisite for further and rapid growth of chemical industry. Our greatest advantage, other than a limited raw material and power advantage, applicable to some situations, is a market which is partially isolated by a shipping cost barrier. We have a rising population, a growing agriculture and industry, availability of natural resources, availability of power and other utilities, and the requisite human resources.

We nevertheless, face real disadvantages as contrasted with Eastern industry. Our opportunities lie first in the heavy chemical industry where local manufacture to fill needs is nearly imperative; secondly, in those very few instances in which Western requirements for relatively high value chemicals is sufficient to justify a Western plant large enough to give economic manufacture; and third, in those instances in which peculiar West Coast advantages permit national competition. As West Coast population and West Coast industry and agriculture continue to expand, these opportunities will increase.

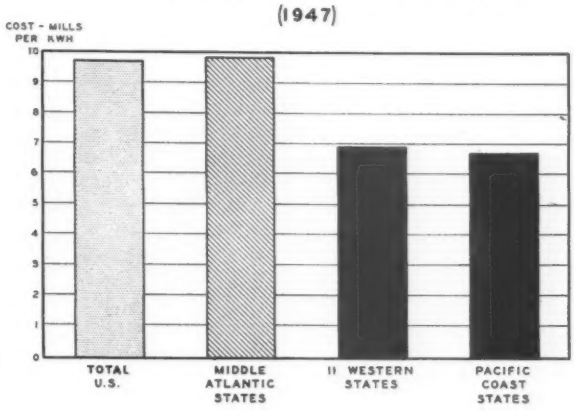
FUEL OIL PRICES (BUNKER C FUEL)



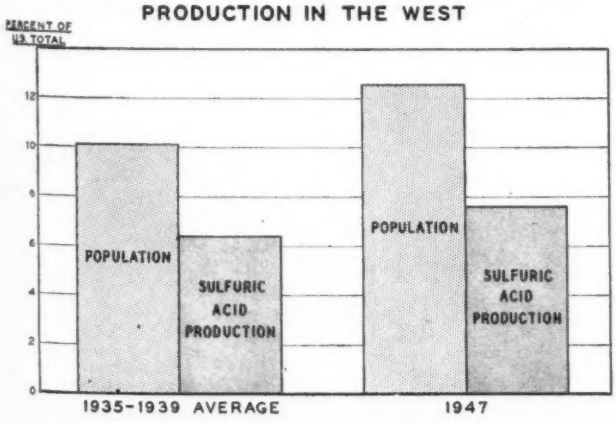
ANNUAL ELECTRIC POWER PRODUCTION



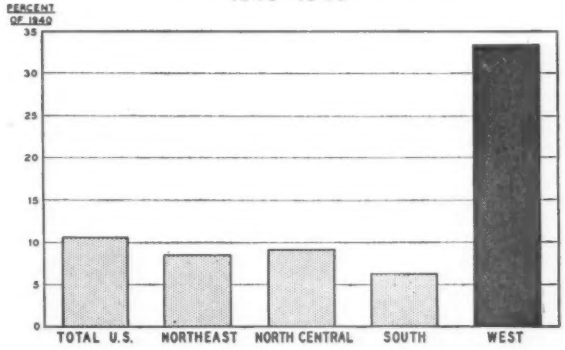
AVERAGE COST OF ELECTRIC POWER (1947)



GROWTH OF POPULATION AND SULFURIC ACID PRODUCTION IN THE WEST



POPULATION GROWTH BY AREAS 1940 - 1948



Things Helpful to Know About The Manufacture of Steel

By HUBERT C. SWETT
Assistant General Superintendent
Bethlehem Pacific Coast Steel Corporation
Los Angeles, California

QUALITY control might also be described as process control, for the term "steel quality" can have many meanings, according to the end use to which the steel is applied. The intended end use of the steel is the governing factor in determining what quality is necessary in the producer's plant.

This discussion describes the procedures Bethlehem Pacific has established in its Pacific Coast steel producing plants to provide satisfactory products for Western customers. These products vary from ordinary merchant bar quality to products requiring chemical and physical properties that are very carefully controlled for specific uses. Most of the knowledge required for quality control is well known; however, methods of application differ with various plants and companies, according to plant facilities and the product being made.

• Bottom pouring molten steel into molds at Bethlehem Pacific Steel Co.'s So. S. F. plant.

The first step in an effective control program is to establish chemical and physical specifications for raw materials that will insure the production of a satisfactory product for the customer at a reasonable cost.

Control Program

All of the steel produced at Bethlehem Pacific's West Coast plants is made either in basic open hearth or electric furnaces. Elements that have an acid reaction at high temperatures must therefore be kept to a minimum in order to prevent excessive erosion of the furnace linings. These acid forming elements such as silica and phosphorus pentoxide, also affect the basicity of the slag by forming compounds which can result in costly slag corrosion. Proper limits must also be placed on elements that normally exist as impurities in steel, such as phosphorus and sulfur. Therefore, materials like limestone, burnt lime, and dolomite have a maximum silica restriction of 1.25 per cent, while other materials that are used in lesser amounts, such as fluorspar, will be limited to 6 per cent maximum. The allowable sulfur content in all such materials is kept to 0.10 per cent maximum as on some grades of steel the attainment of a low sulfur value is somewhat of a problem.

Composition Important

The composition of the metallic charge is of prime importance as it will naturally affect the slag and the molten steel during the refining period. In common with most steel producers a metallic charge of pig iron and scrap is used. It is necessary at times to supplement the pig iron with some cast iron, due to the shortage of pig iron. Desirable analysis for pig iron is a maximum of 1.25 per cent silicon, 0.4 per cent phosphorus, and 0.04 per cent sulfur.

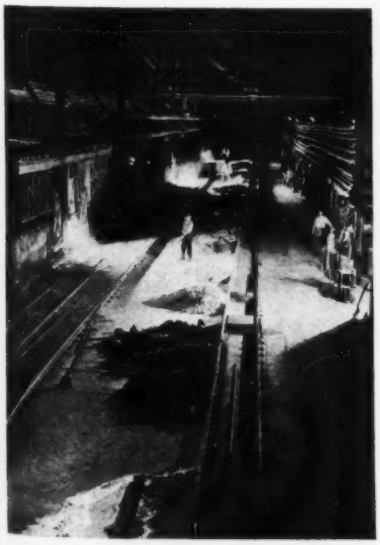
Approximately 25 to 30 per cent of the scrap requirements originates as "home scrap," such as ingot butts, bloom and billet crops, etc. The balance of the scrap must be purchased from various sources such as railroads, public utilities and scrap dealers. Scrap from railroads is generally high grade and well suited for products requiring special properties and surfaces. However, the quality of scrap from dealers may vary considerably, due to the many

sources from which the dealer obtains his scrap.

Purchased Scrap

When using purchased scrap of a heterogeneous nature, the problem of quality control can be complicated by the variable amounts of "residual or tramp elements" in the scrap. (This term "residual or tramp elements" refers to those elements that cannot be completely eliminated in the open hearth process, such as copper, tin, nickel, molybdenum, chromium, cobalt, arsenic, antimony, and tungsten.) Residual tin and, under certain conditions, residual copper, are undesirable for some products, as in particular concentrations both of these elements will cause "red shortness" or surface cracking at critical rolling or forging temperatures. Copper is beneficial in applications where it is desirable to improve the corrosion resistance of steel. Chromium, nickel, and molybdenum influence the hardenability, machinability, or other features and may or may not be desirable. Due to the amounts of scrap of doubtful or unknown origin which must be used, some of these elements may change the composition of the melt sufficiently to prevent the material from being applied to high quality production for certain specific end uses.

If sufficient scrap is available to permit stock piling, segregation of various types of scrap will be practiced. However, notwithstanding the best efforts to eliminate harmful residuals, contamination will be encountered at times. In such cases the only practical method is to analyze the bath, and divert the heat if the residual content is excessive. The most efficient system to accomplish this is to use a spectograph in making the analyses. This phase will be discussed in more detail under laboratory control.



• Open hearth charging floor. Alloying and refining additions are shown in piles on the floor in front of the huge furnaces.

In order to coordinate open hearth production with current rolling mill requirements, daily meetings are held between the mill scheduling and metallurgical departments. All requirements on orders pertaining to the current rollings are reviewed and the metallurgical department specifies the grade, chemical analysis, type of steel, discard, and surface preparation.

Furnace Selection

After having determined the grades and types of steel that are necessary to meet the rolling mills requirements, the metallurgical department confers with the open hearth division as to what furnace to use in producing certain steels and what the current scrap conditions are. If special heats are involved the required practice will be discussed.

To consolidate all of this information, the metallurgical department issues an instruction sheet to the open hearth department, on which every heat is scheduled according to type, specification for chemical analysis, type of metallic charge, flux requirements, deoxidation practice, pouring and pit instructions.

Slag Control

Having established the material requirements for producing the grades of steel needed, the next step in our control program is to have an effective slag control practice. The benefits derived from a successful slag control program include increased production, uniform quality, and lower costs.

As all Bethlehem Pacific West Coast plants use a cold charge of pig iron and scrap, our slag control practices will vary according to the grade of scrap available, and the types of steel being produced, whether rimmed, semi-killed, or killed. Generally speaking, we prefer to have a slight deficiency of lime in the charge, and then make the necessary corrective additions as soon as the need for them can be reliably determined. Our present methods of slag control are to use slag pancakes, determine chemically the total iron as ferrous oxide, and in conjunction determine the sulfur content of the bath. At the present time we are also interested in the application of spectographic methods to slag analysis. Development work is being done to determine if the spectograph can furnish a satisfactory analysis, which would be rapid enough to be of value in slag control.

Control Laboratory

We have found that the use of a small control laboratory on the open hearth floor is of considerable assistance in obtaining the chemical analysis of slag and the preliminary metal analysis. These laboratories are equipped to provide preliminary metal analyses for carbon, manganese, and sulfur, and ferrous oxide in the slag. The control laboratory is connected to the main laboratory by pneumatic tube for sending samples that require residual element analysis. The open hearth observers run all tests for preliminary analysis.

HUBERT C. SWETT
Assistant General Superintendent
Bethlehem Pacific Coast Steel Corporation
Los Angeles

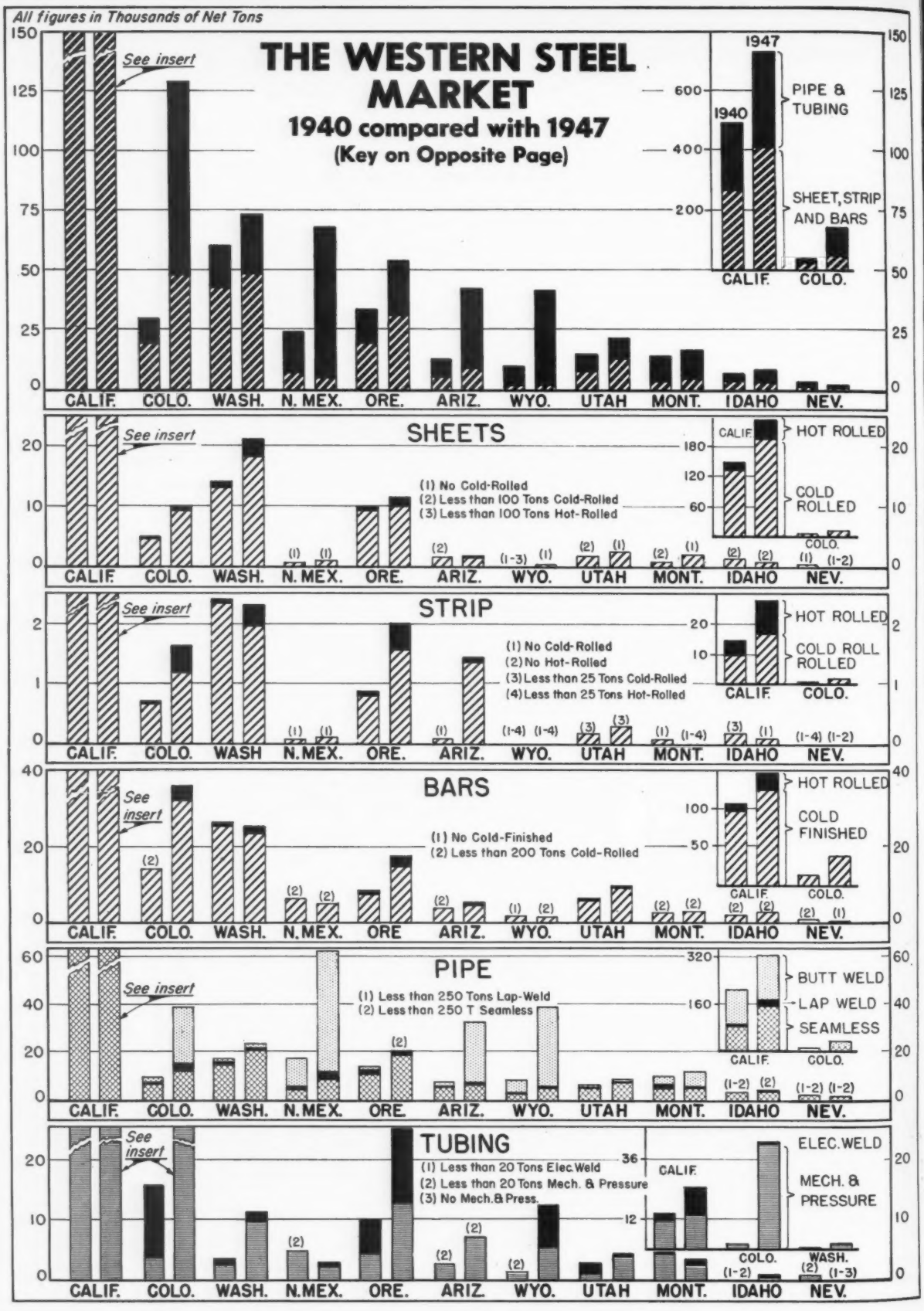
Generally speaking, our aim in slag control is to produce a slag that will have the desired characteristics required for the grade of steel being produced, which will be of such chemical composition that phosphorus and sulfur can be eliminated to the degree desired to meet specifications, and which will permit rational control of the oxygen content. As the lime-silica ratio is the principal controlling factor in obtaining the desired slag composition, we aim for the following ratios, according to the grade of steel being produced:

Lime-Silica Ratios

On rimmed steels with carbon contents of 0.15-0.30 per cent the ratio is 3.0-3.5. For rimmed steels in the lower carbon ranges, 2.7-3.2 is desirable. Semi-killed and fully killed grades will be kept as low a basicity as is practicable for satisfactory phosphorus and sulfur elimination, generally from 2.5 to 3.0.

Besides controlling the basicity of the slag it is also necessary to control the degree of oxidation desired in the metal at tap. For rimming steels with a carbon content between 0.15-0.30 per cent we prefer a finishing slag with a total ferrous oxide content of 15 to 20 per cent, and unless the heat is tapped on the low side of the carbon range, it will generally be necessary to carry a slag higher in lime than usual. Rimming steels in the lower carbon range will generally have the proper degree of oxidation of 20 to 28 per cent total ferrous oxide, and most of the time no additions are required to increase it. The degree of oxidation on semi-killed and killed steels will vary according to the carbon content of the bath, and the required basicity for effective removal of phosphorus and sulfur. Efforts are made to keep the total ferrous oxide in the slag to a minimum in order that the least amount of deoxidizers will be needed to attain the quality desired.

(To be concluded in May issue)


All figures in Thousands of Net Tons
THE WESTERN STEEL MARKET
1940 compared with 1947
(Key on Opposite Page)
See insert
1940
1947
PIPE & TUBING
SHEET, STRIP AND BARS
CALIF. COLO.
CALIF. COLO. WASH. N. MEX. ORE. ARIZ. WYO. UTAH MONT. IDAHO NEV.
SHEETS
(1) No Cold-Rolled
(2) Less than 100 Tons Cold-Rolled
(3) Less than 100 Tons Hot-Rolled
HOT ROLLED
COLD ROLLED
STRIP
(1) No Cold-Rolled
(2) No Hot-Rolled
(3) Less than 25 Tons Cold-Rolled
(4) Less than 25 Tons Hot-Rolled
HOT ROLLED
COLD ROLL ROLLED
BARS
(1) No Cold-Finished
(2) Less than 200 Tons Cold-Rolled
HOT ROLLED
COLD FINISHED
PIPE
(1) Less than 250 Tons Lap-Weld
(2) Less than 250 T Seamless
BUTT WELD
LAP WELD
SEAMLESS
TUBING
(1) Less than 20 Tons Elec. Weld
(2) Less than 20 Tons Mech. & Pressure
(3) No Mech. & Press.
ELEC. WELD
MECH. & PRESSURE

THE WESTERN STEEL MARKET

(Key to the Chart on Opposite Page)

Comparative steel shipments for 1940 and 1947 as prepared by the Martin Congressional committee investigating steel distribution.

Due to limited space, California has been shown in the insert at the right of each classification on the chart, and the total shipments are indicated by using a modified scale. Colorado has been included with California to provide a comparison in magnitude (Washington also included in tubing).

COMBINED SHIPMENTS OF 11 STEEL PRODUCTS

	1940		1947	
Area	*Net Product Tons*	*Per cent of Nat'l Total*	*Net Product Tons*	*Per Cent of Nat'l Total*
Arizona	12,414	0.0878	41,331	0.1933
California	482,181	3.4090	749,408	3.5044
Colorado	30,448	0.2153	128,749	0.6021
Idaho	6,804	0.0481	8,051	0.0376
Montana	13,762	0.0973	16,563	0.0775
Nevada	3,040	0.0215	1,901	0.0089
New Mexico	24,403	0.1698	67,365	0.3150
Oregon	33,327	0.2356	53,392	0.2497
Utah	14,523	0.1027	21,290	0.0996
Washington	60,086	0.4248	73,739	0.3448
Wyoming	9,595	0.0678	41,228	0.1928
Total, Eleven Western States	690,203		1,203,017	

DETAILED FIGURES—SHEETS, STRIPS AND BARS

	SHEETS				STRIP				BARS			
	Hot-Rolled		*Cold-Rolled*		*Hot-Rolled*		*Cold-Rolled*		*Hot-Rolled*		*Cold-Finished*	
	1940	*1947*	*1940*	*1947*	*1940*	*1947*	*1940*	*1947*	*1940*	*1947*	*1940*	*1947*
Arizona	1,480	1,406	24	248	92	1,361	.....	73	3,662	5,101	12	391
California	130,274	194,542	17,572	37,180	9,535	16,580	4,941	10,968	96,730	118,998	7,682	25,342
Colorado	4,568	9,039	406	937	657	1,174	30	436	13,546	32,117	161	3,547
Idaho	1,330	858	2	49	179	100	1	.....	2,008	2,907	1	126
Montana	990	1,922	74	.....	88	21	.....	.....	2,320	2,886	79	31
Nevada	327	87	.....	18	19	.....	.....	.....	760	276	4	.....
New Mexico	471	725	.....	.....	68	113	.....	.....	6,051	4,793	12	6
Oregon	9,179	9,892	612	1,533	787	1,539	69	465	7,275	14,578	934	2,671
Utah	1,611	2,681	71	.....	182	272	1	22	6,116	9,544	209	405
Washington	12,957	18,017	965	3,021	2,339	1,967	72	338	25,534	23,242	741	1,869
Wyoming	43	346	.....	.....	10	4	.....	.....	1,690	1,571	.....	1

PIPE AND TUBING SHIPMENTS

	PIPE						TUBING			
	Butt-Weld		*Lap-Weld*		*Seamless*		*Electric Weld*		*Mech. & Pressure*	
	1940	*1947*	*1940*	*1947*	*1940*	*1947*	*1940*	*1947*	*1940*	*1947*
Arizona	4,788	5,824	324	781	1,793	25,450	221	689	18	7
California	84,846	155,982	6,712	18,447	109,405	146,603	10,894	13,313	3,590	11,453
Colorado	6,783	12,033	731	3,172	1,991	23,412	366	42,167	1,209	715
Idaho	2,879	3,604	185	280	202	55	5	22	12	50
Montana	4,440	4,530	2,068	861	3,226	5,979	453	239	24	94
Nevada	1,671	1,419	71	65	122	20	64	16	2	.....
New Mexico	3,835	7,949	1,402	3,374	11,698	50,130	485	218	1	57
Oregon	10,184	18,296	1,976	1,676	1,338	222	436	1,283	537	1,237
Utah	4,560	7,161	483	345	1,022	434	120	375	148	51
Washington	14,617	20,140	1,108	1,637	1,098	1,255	246	965	409	1,288
Wyoming	1,879	4,653	269	903	5,585	32,477	113	532	6	741

More Steel Produced But Exports Greater

Despite the trebling of steel production capacity in the West over prewar levels, heavy postwar exports of steel have had a serious affect on the Western supply situation, according to F. B. DeLong, vice-president in charge of sales for Columbia Steel Company.

Before the war a number of relatively small mills located along the coast, depending primarily on scrap as a raw material and producing a limited range of products, supplied about 27 per cent of the 2,250,000 tons of steel mill products consumed annually in the area west of the Rockies, he told the Seattle Chamber of Commerce on January 21.

Capacity has trebled, and in 1947, the first year in which most of the newly-enlarged capacity was in full operation throughout the year, Western mills produced 2,500,000 tons of finished steel products, equivalent to over half the total consumption in that year.

"However, due to the extraordinary demand for steel which existed throughout the world, all of this steel did not remain in the area," he said. "In fact, government figures show that a tonnage equivalent to 30 per cent of the local production was exported. I should like to stress the fact that although United States Steel was the largest producer in the area, it accounted for less than 6 per cent of this exported tonnage, most of it having stemmed from competitive mills in the Los Angeles and Seattle areas." But the export of this steel left the West Coast with an even more serious dislocation than we otherwise would have had, and meant an even greater Western dependence on Eastern mills than the bare production and consumption figures would seem to indicate. Although there was an increasing reluctance on the part of some Eastern producers to ship into the more remote markets, they did ship about 2½ million tons of steel into this area in 1947."

Disposable Paper Pallets Save Time, Money, and Goods

WHEN better materials-handling methods are developed, progressive Western industries will be among the first to use them. And when someone comes up with an idea like one-way disposable heavy-duty pallets, alert shippers of goods immediately began to investigate possibilities for themselves.

Chuckaway Company of Boston, Massachusetts, recently put a feasible paper pallet on the market, and showed their product to be much cheaper, considerably lighter, and able to take the same abuse as their wooden counterparts. Yet these new pallets are disposable at their destination, and do not require return to "home base" as do the wooden ones.

Bristol-Myers Company were the pioneers in Western use in this instance, when they started last fall to ship their goods by Isthmian Line from the east to Los Angeles and San Francisco, on these paper pallets. This is what they found:

By using these newly-developed platforms, they could handle goods at their manufacturing plant in one-fifth of the time it formerly took by the now-outmoded "man-and-muscle" method. They saved approximately 20 per cent in direct charges for transportation.

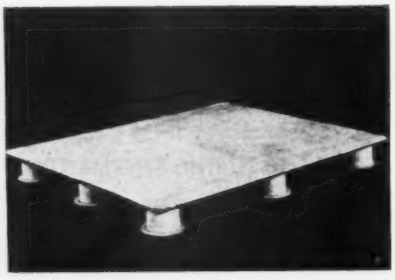
The steamship company saved themselves 80 per cent of the man-hours normally needed for truck unloading, storing and transfer of merchandise for shipside loading. And they loaded the ship in half the time usually used. These economies were present at both ends of the line, of course—in loading as well as unloading. And two of the shippers' worst bugaboos —damage and pilfering—were practically eliminated.

After these economies have attracted attention of other maritime companies and shippers of goods, the future holds promise of seeing the rate-setting body for the intercoastal lines—and possibly rail and trucking lines as well—establish a lower freight rate on pallet shipments.

Bristol-Myers' first shipment to the West Coast, last fall, was purposely intended to be the most severe test possible. Mr. D. M. Daly, traffic manager for the firm, decided to send a shipment via steamship, since handling on such shipments is a lot tougher on the merchandise than similar shipments by truck or rail. For the "guinea pig" shipment, cartons of Trushay were used—a hand lotion packed in glass bottles, three dozen to a 30-pound corrugated paper carton.

Under the old system, each carton had to be handled individually—at the factory, where it was loaded on trucks—at the pier, where it was unloaded and taken aboard the ship carton by carton—and in the hold of the ship, where it was stowed. Then, again, from the destination port, the same time-and-muscle-consuming process all over in reverse at each transfer point until the cargo finally reached a warehouse.

Using this new system, cartons of the merchandise were stacked on the pallets as they came off the packing line at the factory. Initial shipment consisted of 24 pallet loads, each pallet holding 64 cartons. Weight ran to a little less than one ton per pallet.



• This is it. A corrugated paper pallet costing around $1 that will handle an easy ton of weight and take a good beating from moisture and handling. At the end of the line it is thrown away rather than being returned. Weight is approximately 6 lbs.

These pallets were loaded by means of fork lifts. Trucks delivered them to the pier where they were unloaded, checked, and loaded into the hold, still on the pallets. One man and one fork truck did the job formerly requiring a crew of men. The entire shipment was handled in 24 units instead of 1500 cartons, all the way from eastern factory to western warehouse.

Worker safety was increased and fatigue lessened. Damage to merchandise and repacking was practically eliminated. Checking time was cut to a small fraction of its former self, and payment for detention of trucks, a frequent charge when individual cartons are loaded, was eliminated entirely. The palletized loads were still intact upon arrival at the warehouses, and were so stored until needed.

Bristol-Myers have continued experimenting with this idea since their first shipment, and the pallets have been improved to the point where they are now considered standard shipping equipment. They tried using special glues on the cartons to keep the loads from shifting; they tried using steel bands with different arrangements around the loads; they tried differently constructed pallets. End outcome of this project is a really heavy-duty paper pallet that can stand a ton of weight easily, without sagging or buckling, banded once around.

They cost around $1, compared with wooden pallet costs of around $3. They are 40 inches by 48 inches, and weigh six pounds as compared with as much as 100 pounds in a wooden pallet. And since the pallets are shipped at the same freight rate as the merchandise they bear, this in itself is no small item. Furthermore, the new pallets do not have to be returned to the point of origin, which is still another money saving. They are expendable.

These pallets consist of a flat sheet of corrugated paperboard supported by nine spiral-wound corrugated pillars, each about 5 inches in diameter. The whole units are chemically treated to become moisture-proof. They can be handled by all types of standard pallet equipment from any of the four sides, making for easy accessibility in loading, unloading, and storing.

There is not much doubt in the minds of some transportation line operators but that palletizing shipments on these light-weight disposable units will soon be the order of the day in the transportation field. With this triumph of mind over muscle, the "bucket-brigade" days of loading carton after carton are relegated to the archives of industrial history along with horse-drawn wagons and kerosene lanterns.

Whenever materials are to be handled, there some business organization is either making or losing money, perhaps an amount large enough to mean the difference between profit or loss on the entire operations of the company. For that reason, "Western Industry" provides a continuous editorial service to its readers on materials handling developments and problems. The accompanying article is another of "Western Industry's" regular features on handling of materials.

• Upper left: As cases of manufactured goods are taken from the end of the packing line at Bristol Myers factory in Hillside, New Jersey, they are immediately placed on paper pallets. Upper right: From there they are handled as units rather than as individual cartons; factory shifting is done with powered hand pallet trucks. Center left: A truckload of palletized merchandise is delivered to the dock in Brooklyn, preparatory to shipping to the West coast. Center right: Paper pallet can be seen easily supporting its load of nearly a ton, as it is hoisted aboard the ship. Lower left: Palletized loads are stowed aboard ship by fork lift trucks, in half the time it used to take. Bottom right: Pallet loads have arrived at West Coast warehouse by common carrier, and again are handled as ton units. Resultant savings of 20% transportation costs and 80% in time make this method of handling loads well worth shippers' consideration.

Problems and Pitfalls Encountered Planning New Power Plants

By W. O. STEVENS
Consulting Engineer
Seattle, Washington

THERE are a number of companies on the West Coast operating under the delusion that they are saving money by purchasing power from an outside source. Actually they are paying for a power plant that will never be theirs.

Proper procedure of starting up a new plant is a subject that deserves combined consideration of management, operators, and a plant designer if costly mistakes are to be avoided. No matter how well a plant is designed, if due emphasis is not given to proper operation, the results will be unsatisfactory.

Often operators are not familiar with reading plans and the consulting engineer in his desire not to interfere with operations fails to advise the operators of all hazards and possibilities of the new plant. To take an operator from a low pressure horizontal return tabular reciprocating engine type plant, where over a period of years he has done the right thing instinctively, and place him in a modern high pressure power plant where his actions are no longer subconscious, but require considerable thought and direction, is bound to result in financial loss to the owner unless the directions given the operators are clear and complete, and his responsibility is acquired gradually over a reasonable period of time.

Basic Concepts

Basic concepts of power plant design requirements vary to a considerable extent depending on whether they are viewed from the standpoint of the operator, the designer, or management. All have, or should have, the desire to realize the maximum return to the owner. However, interpretation of what will make maximum return, when considered from the operator's viewpoint, is likely to be different from that of management.

Management is interested in spending no more than can be justified in the light of resulting savings. Management wants a plant that will continuously produce power and steam in such quantities as will satisfy all demands on it.

The operator, on the other hand, wants to install every convenience which will tend to maintain or improve his operating record. He wants maximum standby equipment, and is not so vitally concerned with the ability of additional equipment to pay dividends as he is in improved operating conditions resulting from its installation.

Engineer Enters

The engineer is called on to study power requirements and to indicate to management what savings will result from following the recommendations outlined. He must see that the operator has every facility necessary for efficient operation at low maintenance cost without exceeding his estimate for plant or power.

In power plant design, there must be a harmony between form and function. It is no longer necessary to embellish a power plant building with the ornate decorations which were the style some years ago. True beauty of form is now recognized as simplicity and good proportion. With a knowledge of form and functional requirements of a power plant, it is possible to adjust each to realize maximum fulfillment of the other.

WESTERN KNOW-HOW

There is more than meets the eye when it comes to good and efficient design of present-day power plants. Many details ordinarily overlooked by the uninitiated have been brought to light by W. O. Stevens, a Pacific Northwest consulting engineer, who is in the business of designing power plants for special applications.

In this article he gives Western industry the benefit of his years of technical experience in the field, including important short-cuts, technical engineering information and . . . most of all, the seasoned "know-how" to avoid costly mistakes.

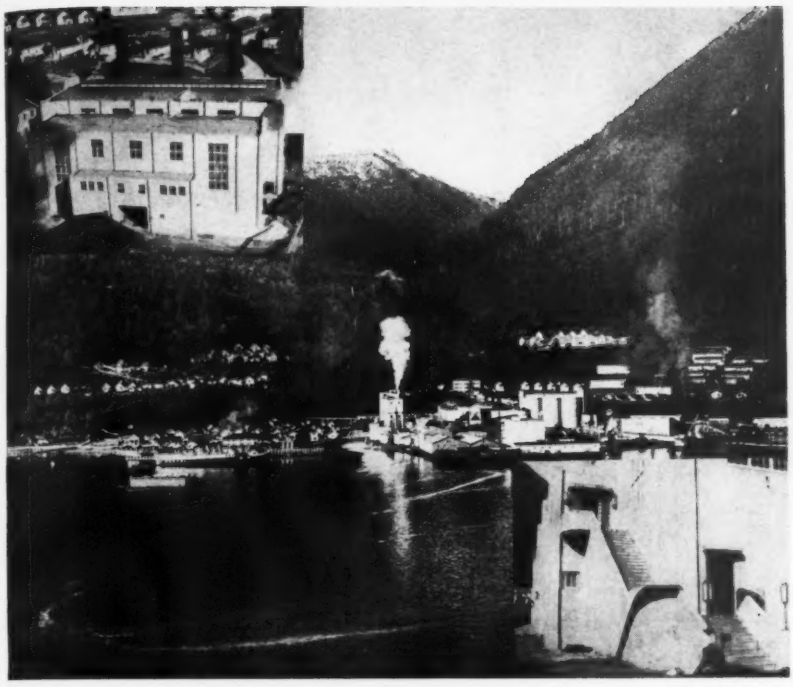
Simplicity is the final stage and ultimate requirement of power plant design. A complicated or involved solution to any engineering design problem is normally indicative of incomplete engineering.

There is no substitute for a comprehensive power survey or complete drawings and specifications. They are a yardstick for evaluating engineering services. Any conscientious engineer will insist on predicating his design on basic information. Power plant recommendations must be based on complete fuel, water, operating, maintenance, fixed charges, book value of existing equipment, cost of new equipment and comparative cost of steam and power produced in the proposed plant with other competing sources.

Recently, we were requested to make a power survey for a large industrial plant. Among the cost data furnished was the cost of 1,000 pounds of steam. Cursory study of the plant indicated that the value given was low and the accounting department was asked to show how the figure had been arrived at. Examination showed that the cost of a thousand pounds of steam had been figured by dividing the cost of fuel oil by the number of pounds of steam produced, neglecting the fact that a considerable quantity of waste wood was produced in the process and used as supplemental fuel. The accounting department stated that the waste wood did not cost the company anything and, hence, did not enter into the cost of steam. If steam cost figured on this basis had been used to determine the expenditure that could be justified in the light of resulting savings, the plant design would have been entirely different from the final result.

Another Case

In another instance, a comprehensive boiler test was furnished to indicate the efficiency of the present plant. During the test, bark with a moisture content of 62 per cent was burned with a calculated net boiler efficiency of 70 per cent. The only mistake was that loss due to moisture in the fuel



• This pulp plant at Woodfibre, British Columbia, has a power plant designed by W. O. Stevens. Inserts show exterior view of the power plant, at the head of Howe Sound.

had been subtracted from heat content of the fuel to determine boiler input.

A complete heat balance should account for every b.t.u. entering the system, used in the process, transformed to other forms of energy, returned to the boiler, or wasted.

Specifications

Specifications and contract agreements, if properly prepared, require a lot of time and effort. If complete, and contain nothing of a proprietary nature, they are the only real basis for fair competitive equipment proposals. Specifications should have the answer to any question which may arise between contractor and purchaser, and they must be fair to all parties concerned. Together with the drawings, specifications should stipulate not only what is to be done, but if complete should answer all questions as to when, where, why, how, and outline the schedule of remuneration in detail. Wherever process steam is required in sufficient quantities, by-product electrical energy generation must be considered if any industry is to survive an era of keen competition.

Steam Charges

In by-product power, the only steam cost chargeable against power is the difference in enthalpy in the steam entering and leaving the prime mover. In a new plant, boilers are required to provide process steam in any event, and only additional charges for higher pressure boilers should be charged against power generation. To this must be added fixed charges for a building to house the turbo-generator, the additional piping and high pressure auxiliaries. It is possible to assume a very complicated operating cycle with an inefficient heat balance, charge the entire power plant cost to power generation, compare this with base rather than actual hydro-electric power cost purchased from an outside source, and obtain a less attractive picture.

No two power plants have exactly the same heat balance. Due to local conditions, it is impractical to reproduce a design in any other locality than the one for which it was initiated. Basic requirements of the power plant cannot be divorced from the plant it is to serve. It must be located with due regard to fuel supply and storage, the center of steam and electrical load, drainage, water service, ash disposal, and accessibility.

Optimum Voltage

Optimum generating voltage must be studied in the light of circuit breaker size and cost. For any voltage, the cost of higher interrupting capacity breakers should be compared with results obtained by using breakers with lower interrupting capacity combined with reactors. Transformer and copper cost must be figured to arrive at optimum voltage.

Economical Size

Before economical size of generators can be determined, it is necessary that a careful analysis of the plant load and demand factor be made. This can be done only by an intimate knowledge of operating conditions at similar plants.

Design of the electrical system is involved and requires a lot of painstaking studies and calculations; however, determining the most economical electrical design is much more clearly defined and there are not nearly as many variables as establishing the optimum heat balance to fulfill the requirements for steam and electricity at minimum over-all costs.

Heat Balance Efficiency

Heat balance efficiency is affected by process and heating steam pressure requirements, boiler feed heating, turbine throttle, extraction and exhaust pressures and tem-

• Looking toward West end of turbine room in the Woodfibre power plant. Westinghouse condensing turbo-generator in foreground, with a Pelton waterwheel in the background.

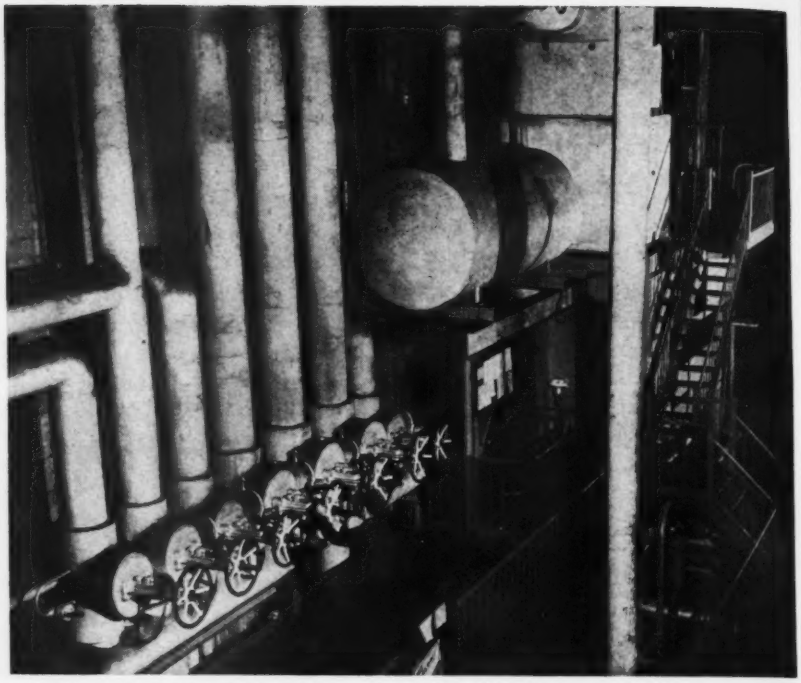
peratures, the boiler and turbine auxiliary equipment inlet and exhaust conditions and the number of steam and electric aulixiary drives. For a pulp mill, a condensing double extraction turbine might at first consideration appear to meet all requirements. It is an expensive complicated unit and is neither a cure-all nor an efficient solution to any normal power generating problem encountered in a pulp mill.

About Condensing Power

A pulp mill cannot afford to generate condensing power under normal operating conditions. When producing non-condensing power in an extraction condensing turbo-generator, cooling steam must pass through power pressure stages to the condenser. Cooling steam will be heated by windage in the low pressure stages and the blades will be subjected to dry steam. At low loads, operating temperature of the steam must be carefully checked to avoid errosion of low pressure stages due to moisture in the steam. Governor control of a double extraction unit is unduly complicated especially in a machine that is isolated from outside source of power which must be speed responsive. Under no operating conditions does the double extraction condensing unit equal the maximum efficiency of the straight back pressure turbine. Under any normal conditions of design there must be some stages of the turbine operating at part load efficiency.

Heat Balance Design

Ultimate in heat balance design, as in other phases of design, is simplicity. The straight back pressure turbine is the simplest, most economical and most efficient unit available. By installing two back pressure units exhausting at different pressures, it was found possible to satisfy the peak electric and steam demands of a mill equipped with a hydraulic barker without increasing turbine inlet pressure. Heat ballance was so arranged that either machine can produce electrical requirements of the mill during the 16 hours each day the barker is not operating.



• **Boiler room of B. C. Pulp and Paper Co. Ltd.'s Woodfibre power plant. View shows main header, deaerating heater, and feedwater storage tank in efficient arrangement.**

It might be argued that in a by-product power generating turbine, efficiency of the turbine is immaterial, as additional heat retained in the machine is available for process. This would be true if it were not for the fact that the heat input to the inefficient turbine must be increased to develop the same quantity of power.

On the West Coast, we have inherent design problems peculiar to this locality which are not appreciated or recognized by Eastern manufacturers. There is a tendency among manufacturers to endeavor to sell equipment designed to meet conditions quite foreign to those encountered here.

The larger turbine manufacturers with their ever-increasing desire to standardize would like to sell sizes and types of turbines eminently suitable for the Eastern market where a larger percentage of the units are for utilities and a relative small number are sold to produce by-product power.

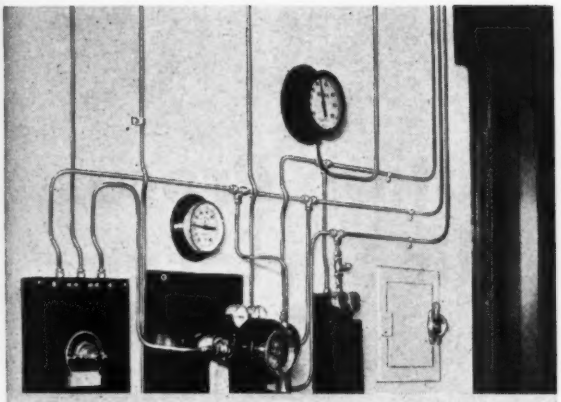
• **Boiler combustion control panel containing steam flow, air flow meters and controls for all three boilers at the Woodfibre plant. Panel is mounted on the dutch oven deck.**

Beware Standardization

We all appreciate the advantages and benefits to be derived from standardization. There is a limit, however, upon which further standardization and limitation of size of turbo-generators will result in less efficient heat cycles and poor plant design.

A standardized ready made suit can be presentable provided the purchaser is permitted to have buttons moved and minor alterations taken care of and there is a reasonable choice of sizes. There are always local conditions that require adjustments and tendency by the manufacturer to force purchase of turbines not too well versed in essential details. To make the hole fit the patch is bound to react to the turbine manufacturer's detriment.

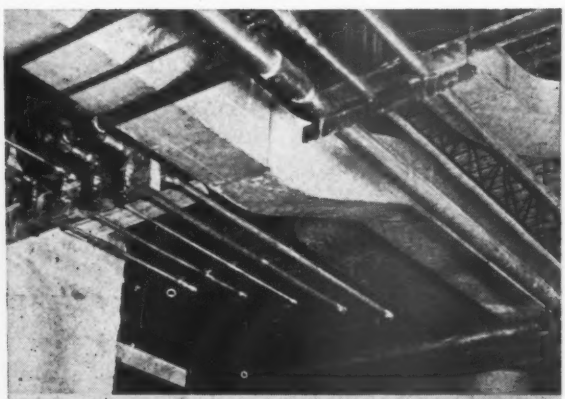
REVERE COPPER TUBE



FOR REFRIGERATION. You can depend on Revere Dry-seal Copper Refrigeration Tube to be soft and easy-to-bend. The interior surfaces are kept clean and dry by a safe mechanical end seal. And this tube is now made to new, more economical dimensional standards. You can't buy a better refrigeration tube!

FOR UNDERGROUND SERVICE. The rust-free, permanently smooth interior of Revere Copper Water Tube insures full and unrestricted flow for a lifetime of continuous service. Being flexible, this tube compensates for main "travel" and eliminates the need for special goosenecks.

FOR RADIANT PANEL HEATING. The light weight and smaller outside diameters of Revere Copper Water Tube are a distinct advantage in wall and ceiling panels. And the use of long lengths of soft, easy-to-bend Revere Copper Water Tube provides ease of fabrication right on the job.



FOR HOT AND COLD WATER LINES. You are sure of long life and a free flow of water when you use Revere Copper Water Tube for hot and cold water lines. Because interiors do not become clogged by corrosion, the lines can usually be a size smaller than would be required with rustable pipe.

• Because Revere Copper Tube is joined by either solder or compression fittings, it requires no threading. Thus no excess metal is required for cutting of threads which provides a saving in metal costs. Whenever you use Revere Metals, you are sure of fine quality. You can always turn to Revere with confidence for —*Copper and Copper Alloys:* Sheet and Plate, Roll and Strip, Rod and Bar, Extruded Shapes, Forgings; *Aluminum Alloys:* Tube, Extruded Shapes, Forgings.

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NEW PRODUCTION TECHNIQUES

New Metal Evaporation Process Coats Non-Metallic Surfaces

• Photographic lenses are loaded on an overhead fixture, being made ready to be coated transparently by evaporated metal using high amperage in a vacuum chamber.

Although processes of evaporation coating and cathode sputtering are technically and applicationally similar, there is this difference: cathode sputtering, which has long been in commercial use, consists of using high-voltage direct current to disintegrate a metallic cathode in a vacuum chamber, whereas evaporation coating consists of using high-amperage alternating current (readily available) to vaporize metallic materials in a vacuum chamber. Ray Campbell & Company are the Western pioneers in this technique.

Through the use of a recently-developed metal evaporation process, Ray Campbell & Company of Los Angeles now produce transparent metal castings on glass and other nonmetallic surfaces without preparatory heating or surface roughening.

The process improves optical properties of photographic lenses, astronomical reflectors, and similar types of optical or scientific instruments. It can facilitate the fabrication of master molds for products such as phonograph records, and it will permit the metallizing of articles such as microphone diaphrams or quartz fibers with unprecedented precision.

Alternating Current Used

It consists of heating a thin segment of the required metallic coating material with a high-amperage alternating current at low vapor pressure in a vacuum chamber, so that the metal will be evaporated or disintegrated as a sequence of molecular rays for permanent deposition on surfaces suspended in the chamber by overhead fixtures. No appreciable quantity of heat is generated in the deposition surfaces be-

(Continued on Page 95)

USE THE "AIR RIGHTS" OVER YOUR PRODUCTION FLOOR

Whiting TRAMBEAM can be put to work in your plant with minimum waiting

THE VARI-PRESSURE DRIVE is a patented unit available only with Whiting Trambeam installations. It has soft rubber contact drive wheels mounted on a pivoted frame, so that pressure is increased with increased loads. This unit gives smooth, shock-free starting and stopping. Applied to either cranes or carriers.

By using overhead cranes and monorails to handle your materials, you can have an efficient system which requires no space on your working floor . . . no wide aisles, no aisle maintenance.

You can have work ready for workmen when they need it, with no pile-up of unfinished work waiting at each machine. It saves production time and reduces inventory requirements.

Whiting TRAMBEAM OVERHEAD MATERIALS-HANDLING SYSTEMS

Whiting's ample production facilities — at both Harvey, Ill., and Los Angeles — enable us to save valuable weeks and months in getting Trambeam Systems into operation.

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REGIONAL REVIEWS
TEHACHAPI TO TIJUANA

Film Industry Stages a Comeback As Studios Divorce Theatres

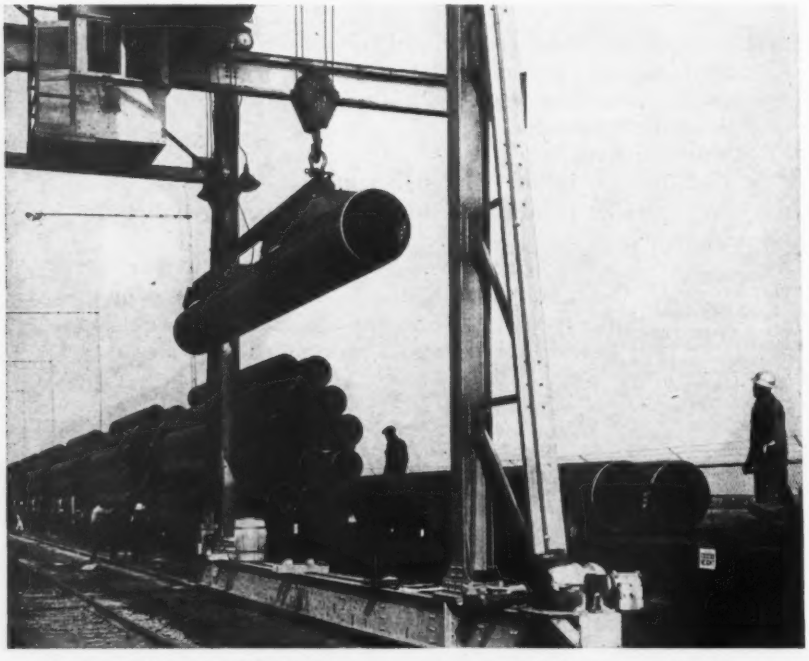
Some local industries start to batten down financial hatches; Large brass plant to build near L. A.; Latex offers challenge

LOS ANGELES—While Southern California's industrial forces appear to be retreating in a number of important sectors, bold offensives are being attempted along other salients of the area's economic front.

Hollywood Rides Again

Most striking, perhaps, is the celluloid comeback that might well be subtitled, industry's efforts to stage a spectacular "Hollywood Strikes Back." With unerring drama, this resurgence comes in the depths of a grim depression that has cost Hollywood more than 10,000 of its 24,000 production jobs—carpenters, stagehands, laborers, and make-up men—brought hungry days to its 8,000 "bit" players, extras, and others who appear before the cameras, and relegated to "between pictures" (unemployed) status about half the 742 contract players who last year occupied the higher brackets of the acting profession.

Gallantly the small but mighty industry is rising from what seemed its deathbed. It has accepted the verdict of the trust-busting Justice Department and is divorcing picture production from picture exhibition. Loew's, 20th Century-Fox, Paramount and RKO have officially agreed to split their companies and distribute the respective halves among stockholders. Paramount's 1450-theatre chain, along with miscellaneous television interests such as stations KTLA and WBKB in Los Angeles and Chicago, and the Dumont Laboratories, will become a presumably separate entity. Only Warner Brothers still is snorting defiance of the Solomon-like decision and threatening to carry the fight to the Supreme Court.



• This initial shipment of 30 inch diameter pipe is the first of approximately 20,000 carloads consigned to Transcontinental Gas Pipe Corporation in Texas. It will be used during course of construction of the world's longest pipe line from Texas to New York.

Bigger and Better 1949

The industry generally has now turned to plans for a bigger and better 1949 with a schedule for 393 new films in the most ambitious year's production program in its history. RKO's new boss, Howard Hughes, has announced a rip-roarin' series of sensational films that will start the studio grinding full blast after virtual shut-down since the oil man took over.

The hundred-odd movie moguls who assembled to hear Eric Johnson report their Association's progress toward solving the industry's collective problems were told that motion picture gross business was off about 8½ per cent from the 1946 peak but is still holding at the 1945 level. Population growth since 1940 of 16,000,000, plus a shift of 3,000,000 from country to city, should give picture makers enough new customers to level out far above the pre-war mark, particularly in view of large gains in disposable income.

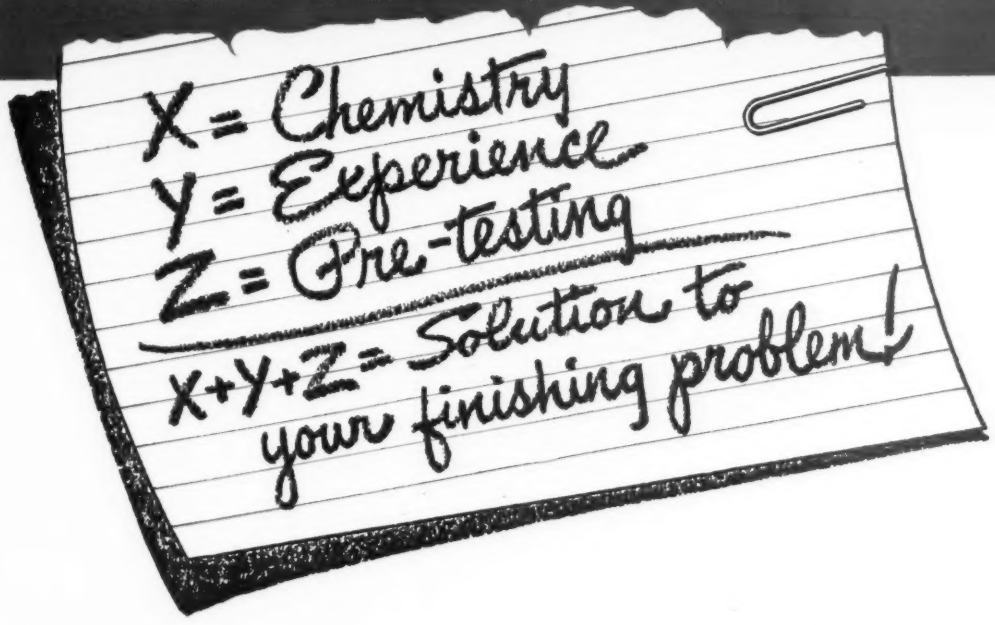
Statistics Aren't Dollars

Dr. Arno Johnson of J. Walter Thompson Company pointed out the unpleasant truth that so far, these statistics haven't succeeded in getting people to buy more theater tickets than before the war. Little stress was given to the spectre of television which could be felt brooding darkly over the meeting, but the tone brightened with report of progress along the foreign front, where the restrictions clamped on the U.S.-bound revenues from American films applied the most painful pressure to Hollywood's financial arteries.

Millions of frozen dollars, the movie men were told, already have been thawed out by international horsetrading in which the studios have swapped their pent-up funds for oil tankers, doors and window

(Continued on Page 50)

A finishing formula that fits every product!



Chemistry that produces, through research and development, the finest of finishing materials . . .

Experience, years of surveying finishing procedures and requirements, and in adapting finishes to meet them . . .

Pre-Testing that proves the coating will do precisely what it is intended to do—increase mileage, cut down rejects, and reduce costs . . .

These are the elements in a formula every Glidden Technical Service man knows. He uses all of them — plus constant preventive service—to attain the efficiency and economy of Glidden Industrial Finishes. Call on him to apply this formula to your problems.

PROOF PANEL

An important manufacturer of special door cabinets recently called in Glidden Technical Service to check his entire finishing operation. The specifying of proper coatings was incidental to the application of the "X+Y+Z formula" in stream-lining finishing department procedures. As a result, his company's literature now carries this line —"GLIDDEN Baked Enamel."

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THE GLIDDEN COMPANY
1300 Seventh St., San Francisco 7, California
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TAKE YOUR PROBLEM TO . . .

Glidden *Industrial Finishes for every purpose*

(Continued from Page 48)

sash, wood pulp, books, and investments in charities. The news was good and it helped cheer the cinema industrialists, who are starting the wheels whirring again. Undoubtedly they will find that like other industries, their recent adjustment to post-war realities will be reflected in sober cost-counting, in elimination of much dead wood from studio payrolls, and in greater productivity from staffs, now sobered by a long season of tightened belts. Thus, after night, comes the dawn to Hollywood.

Economic New Look Expected

Other industries which are expecting a spring uptrend in employment include auto companies and makers of stone, clay, and glass products, as well as apparel and construction firms, which normally experience a seasonal rise. Furniture plants look forward to a pick-up, although sales of all but the lowest-priced merchandise are dragging. The industry is well aware it must shift emphasis and produce cheaper —and less bulky—furniture for the small "economy house" that will dominate the building field in coming months.

Offsetting these anticipated gains are dismal declines in nearly all branches of small manufacture. Growing eastern competition, consumer resistance, and ending of shortage-induced buying for inventory have put the brake on many little firms and stretched many a shoestring uncomfortably taut.

Business failures in southern California, as reported by Dun & Bradstreet, totalled 777 last year and are hitting the highest level in a decade and a half. The Security First National Bank points out, however, that this area, with about 4 per cent of the businesses in the United States, has nearly 15 per cent of the failures and nearly 10 per cent of the liabilities. "A large proportion of the businesses," continues the bank, "are new and unseasoned, and it is among these that the incidence of failure is always highest."

A Tip from the Wise

Some large local industrial concerns have taken steps to batten down their hatches financially by a means that may be worth study by others. Major insurance companies have made a number of sizable loans, including $5,000,000 by Metropolitan Life to Gladding McBean & Co. "to consolidate existing bank loans," and $1,-000,000 to Thrifty Drug Co. and $500,000 to Van de Kamp's Holland Dutch Bakers by Pacific Mutual Life.

Other large firms have sold their new buildings to insurance companies, arranging for occupancy under agreements which place the capital burden on the lender-purchasers. One factor in the situation may be the relative freedom insurance firms have from loan restrictions under which the banks must operate.

Big Brass

One of the largest plants yet erected since the war is scheduled for erection by the American Brass Company, which has bought a 45-acre tract near Los Angeles. The facilities will be for manufacture of non-ferrous sheet, wire, rods and tubes.

Three jet atomizer nozzles, spouting from the surface of the Los Angeles Municipal airport, recently sent up a nine-foot fan of flame into the misty southern California morning. It was a signal the world's first commercial "Fido" system was ready for operation. A total of 392 such burners, spaced along 4000 feet of the main runway and spreading out into the approach zone, will disperse the, (er, ahem) fog from the path of incoming transport and military planes. Fido's adoption by commercial flying was financed about half by the Federal government and half by the city, whose share will be repaid over a five-year period by the five major airlines.

The Fido installation is combined with ILS, VHF, and Low Frequency radio ranges, and other late navigation aids, to make the airport one of the world's most modern. Aircraft industrialists here hope other cities will follow suit.

Latex Leaps Ahead

Announcement that American Latex Products is erecting on a two-acre tract near El Segundo a new manufacturing plant and huge warehouse for foam rubber, calls attention to the fact that the West is pioneering in use of a new manufacturing material whose growth in its field may rival the amazing development of plastics. Foam rubber was but a virtually unexploited technical curiosity when the war cut off the supply of natural latex.

In three post-war years it has heavily entrenched itself in the field of upholstery for theater, train, plane, and furnishing for public buildings; gained acceptance by aircraft and automobile makers, and created a sensation in the furniture manufacturing field. With natural latex at last in plentiful supply, it is ready to move into the consumer field where a tremendous untapped market is believed to exist.

C. M. Christie, president of American Latex, reports that already more foam rubber is used in the homes of Los Angeles County than in all of New York and Chicago combined. Local factories are consuming more for industrial purposes than any other area except Detroit and Grand Rapids. Reasons are: (1) large amount of furniture manufacturing here, (2) adoption of foam rubber cushioning by aircraft makers, and (3) huge post-war growth of restaurants, retail stores, theaters, and other commercial establishments where rubber products offer special advantages.

Unlike ordinary rubber, foam rubber is converted directly from the milky soap of the hevea tree to its final form by adding a small amount of a "jelling" agent, then whipping the liquid in a machine like a giant egg-beater, much as a housewife beats egg-white into a meringue. It differs sharply from sponge rubber, which is milled from raw solid rubber, with the addition of blowing agents to expand the individual air cells inside its tough, impervious skin. Foam rubber's tiny openings are interconnecting, forming a network through and through. One can puff a cloud of cigarette smoke right through a slab of it—whence the claim that the rubber "breathes"—a valuable cooling feature for seat cushions in hot weather.

New Uses

Lately its extreme softness has found many uses in industrial packaging. An oil surveying equipment manufacturer uses it for packaging delicate galvanometers. Navy chronometers are set in foam rubber to dampen vibration. A Los Angeles bakery beset by costly accidents in delivering wedding cakes, now sends out its frosted creations upon foam rubber matresses placed on the floors of its trucks. Small compressors and small motors such as those in dental equipment are vibration-dampened with airfoam. Conveyor belts of the soft material are being used in washing walnuts and eggs, and in automatic prune pickers to pick up the fruit from the ground.

This spring the airfoam mattress for the home is hitting the market under a heavy barrage of national advertising. Since a full-size mattress requires about 40 pounds of foam rubber—or about ten times the amount of crude rubber in an ordinary 6.00-16 tire—this market's potential could run into impressive tonnages. Some observers are predicting that 75 per cent of all latex produced may go into this field.

Industrial Conflict

Since natural latex, rather than synthetic, is the raw material, there may appear to be little direct connection with the West's synthetic rubber industry, now idling along at less than 40 per cent of capacity. But if the new "cold rubber" lives up to present hopes, it may largely displace natural rubber from the tire market, which now consumes about 70 per cent of all rubber produced. The price of imported latex could hardly fail to decline, narrowing the gap now separating foam from competing upholstery materials such as cotton, jute, feathers, and down. (Current retail price of foam rubber mattress is in the neighborhood of $100—a figure which surveys proved too high for at least 60 per cent of U.S. buyers.)

These possibilities have not been lost on the eight major rubber producers who are now enlarging their facilities for the foam product. U.S. production rose to 25,-

(Continued on Page 52)

May number of Western Industry will be **Materials Handling Issue**

IF YOU MANUFACTURE OR HANDLE

LIFT TRUCKS
FORK TRUCKS
CONVEYORS
HOISTS
TRAMRAILS
HAND TRUCKS
PALLETS
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TRAILERS
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SHIPPING ROOM EQUIPMENT
COUNTING DEVICES
ROLLERS
CONVEYOR BELTS, etc.

This Materials Handling issue is for you

Cash in on this editorial concentration on Materials Handling. Forms close April 5 . . . rush reservations NOW!

You will profit by an aggressive representation of your company in this information-packed number! The sustained reader interest that WESTERN INDUSTRY enjoys (inquiries from our January issue are still coming in, and it was published in December, 1948) is your assurance that your advertising will receive continual presentation to nearly 9,000 top-flight plant executives in the 11 Western states, *over a period of many months.*

This is the opportunity for which many wise advertisers set aside special advertising funds—an opportunity to get additional coverage of one of the most active materials handling markets in the country. Advertising in this number should be a *must* for every materials handling manufacturer and distributor serving the 11 Western states sales area.

You have seen the traditionally good editorial job being done in WESTERN INDUSTRY, and also the superlatively fine work featured by our Editorial Staff in the January Annual Review and Forecast issue, so you know what to expect in our May, 1949 MATERIALS HANDLING issue.

We want to position your advertising where it will do *you* the most good. But, to do so, we must have an early reservation for space. *There's no time to lose.* Air mail or wire your reservation, today, giving us the size of space, second color, position requested, and when material will be shipped. Remember the closing date for our first forms is April 5.

Come on in, the water's fine!

"Come on in, the water's fine!"

WESTERN INDUSTRY

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Telephone Brookfield 532

SAN FRANCISCO OFFICE
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LOS ANGELES OFFICE
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3757 Wilshire Blvd., Los Angeles 5
Telephone Fitzroy 9462

ECA

(Continued from Page 50)

000 tons in 1947, 36,000 last year, and may top 50,000 in 1949.

American Latex has developed a secondary market from the byproducts of fabricating foam. Virtually all clippings from Eastern prime producers are being shipped to Los Angeles for reprocessing into a grade of foam suitable for mops, pads, and cheaper upholstery. Now a 50 per cent reduction in westward freight rates has just been secured—an amount nearly equal to the original value of the scrap. Amusingly, the Western reclaimed byproduct finds its chief outlet East of the Rockies.

Crews are rushing construction of dikes along the seaward side of a rich industrial zone at Los Angeles Harbor in an effort to save six square miles of land that are slowly sinking. Ford Motor Company's big assembly plant is being bulkheaded with sheet piling and cement walls. Union Pacific is throwing up giant earthen dikes to strengthen its vast frontage. The Navy's huge graving dock, large enough to accommodate the largest "battle wagons" afloat, has long been plagued with refusal of its seaward gate to stay in position. A $5,000,000 vertical lift bridge built by the Navy with allowances for sinking has weathered the subsidence, but a 20-year-old bascule bridge nearby has had to be altered and raised seven feet to offset the drop.

This problem has been tossed into the lap of the new Stanford Research Institute, which recently was handed another problem child, the smog menace. City fathers can't feel too gloomy about the strange sinking, costly though it may be, for the area where it occurs is studded with some 2,000 producing oil wells, tapping seven sands bottoming ultimately 6000 feet below the surface, ringing the City of Long Beach's cash registers to the pleasing tune of $30,000,000 next year.

Many believe that withdrawal of oil has caused the sinking. They point out that Signal Hill, historic field on the opposite side of Long Beach, likewise has been sinking gradually over the past several decades while pouring forth untold multi-millions in petroleum.

Hands Off

City planners would like to tap these rich royalty revenues for many purposes, but the money is securely ear-marked by law for the Long Beach Harbor Department, which is building one of the most comfortable and commodious ports of its size on the west coast.

The other, or poor relation, half of the twin harbor area has just been endowed with $11,000,000 from the City of Los Angeles for the purpose of building three large passenger-freighter terminals, with wharves and transit sheds, plus a new "fisherman's wharf" for this important local industry.

Two other sizable construction jobs are now on the drafting board here—one, a 2,000,000-square-foot furniture market center, - stories high and costing $10,000,000, to accommodate regional and national trade shows to promote Western products of the home furnishing industries. The other is the long-discussed subterranean garage under Pershing Square, which may soon receive final approval. This vast block-square burrow would house 2500 automobiles at the heart of the city's downtown shopping district, easing the parking shortage which has gradually stifled the area's retail trade and given sharp stimulus to competing neighborhood business centers.

Retirement Fund Swelled

1948 contribution of Norris Stamping & Manufacturing Company in Los Angeles to the Norris Employees Savings, Profit Sharing & Retirement Fund amounted to more than 14 per cent of the salaries and wages of the participating employees. Since the fund was established in 1940, the company has contributed out of earnings $832,107 and the employees provided $212,568 out of payroll deductions. Principal purpose of the fund is to create an estate which will provide an income upon retirement of the member employees, who total 719 at the present time.

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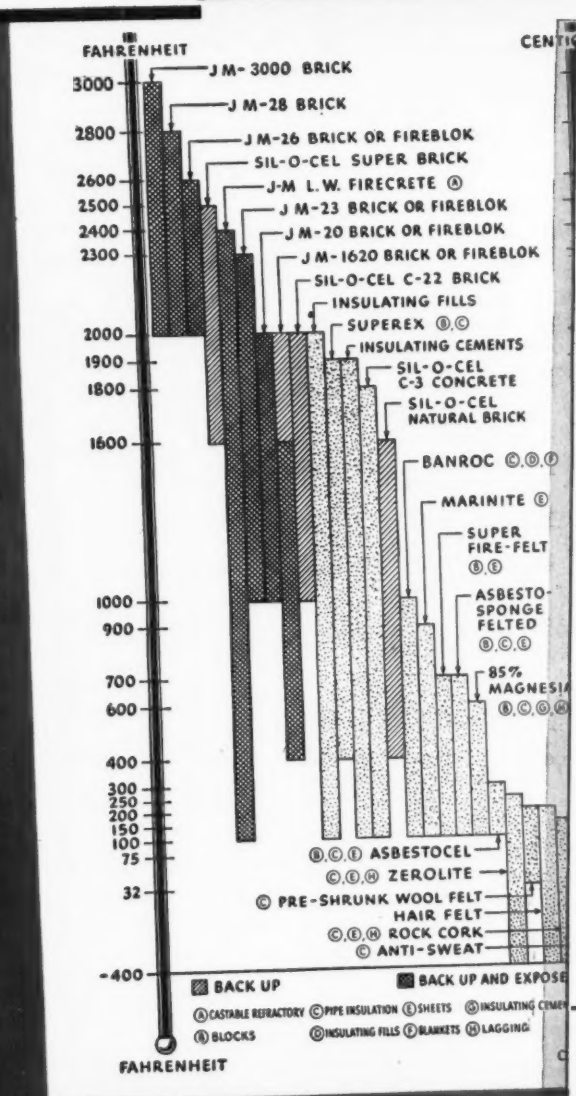

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REGIONAL REVIEWS
SIERRAS TO THE SEA

Western Industrial Expansions and New Capital Ventures Continuing

Population growth estimated at 6500 per week for next ten years; Longshoremen and ship operators decide to start pulling together

SAN FRANCISCO—Indices of various kinds point to a slowed tempo of industrial activity in northern California this year, but with no serious sag. In San Francisco January was a better month than in 1948. Meanwhile the momentum of new ventures and expansions continues, northern California having a total of 29 new plants and 17 expansions reported for January, totaling $4,892,500.

Sneeze Not

Industrial expansion for California for last year, as reported by the California State Chamber of Commerce, was about 33 per cent below 1947, but the 1948 total of 1154 new or expanded industrial plants, representing an investment of $215,531,000 is nothing to be sneezed at.

Effects of the industrial growth upon the state's economy are reflected in the measure of factory employment. The 1948 average of 730,000 shows an increase of 84 per cent over 1939 factory employment. Factory payrolls have shown a 285 per cent increase over 1939, and in the same period, value of the state's manufactured products has nearly tripled.

The four-year industrial expansion by private industry already exceeds the federal government's financing in California war plants from 1940 to 1945, which totalled $1,006,000,000. War Production Board figures show private capital financed an additional $475,000,000 in wartime factory expansion here.

Where the state will be in 1960 is a matter of difference between prognosticators, but the average of all their figures, as calculated by Donald V. Doub of Pacific Gas & Electric Co., for the Central Coast Council of the State Chamber of Commerce is 13,750,000 population for the entire state, 6,737,500 for northern California and 3,372,865 for the San Francisco Bay area.

6500 Per Week

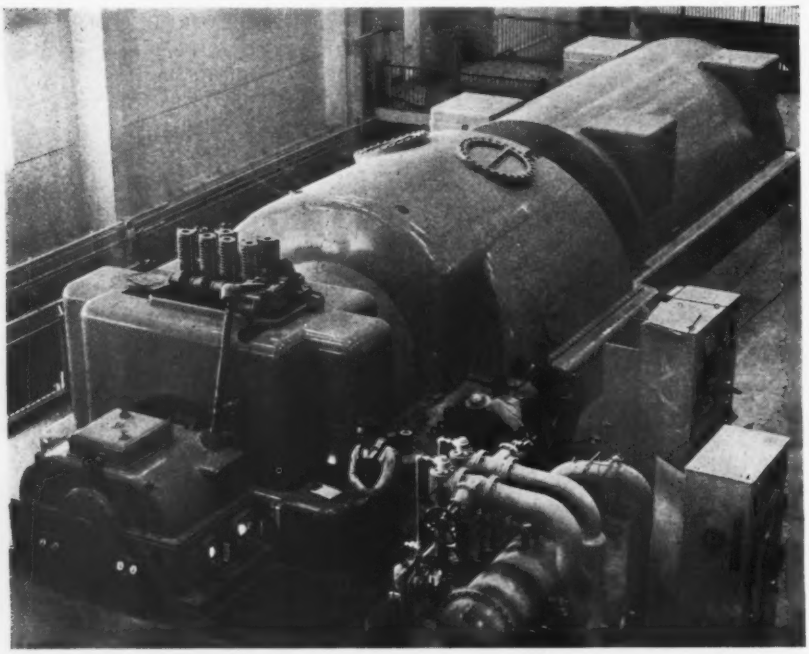
In other words, his estimate of the population growth in the 1950-60 decade is an average of 338,000 persons a year, or 3,388,000 for the decade. Expressing growth in terms of electric loads, Robert P. O'Brien of the California Public Utilities Commission figures the installed capacity of 5,100,000 kw. at the beginning of 1948 to 9,100,000 kw. in 1960 and 12,800,000 in 1970.

On the other hand, the farmer situation does not look too optimistic, with growers having discussions with Department of Agriculture officials over tree pulling programs in prunes and apricots and vine pulling of raisin grapes. Back in the early thirties the packers and growers together financed tree pulling programs for peaches, but now the idea seems to be heading toward having the government carry part of the load.

Armistice

Longshoremen and steamship operators joining in sessions to consider ways and means of building up the shipping industry along the Pacific Coast is a hopeful sign, indicating that it is beginning to be realized that labor wars don't make money for everyone. It would help the industry materially if the world were successfully planted everywhere that the Coast would no longer be subject to cargo delays. Some California manufacturers have even been shipping by rail to New Orleans to avoid the possibility of a tie-up.

(Continued on page 55)



• One of two new 149,000 horsepower generators placed in operation recently by the P.G.&E. at their new station P in San Francisco. This $30,000,000 steam-operated generating plant expansion makes difference between 62,000 h.p. and present 360,000 h.p.

Nevertheless, there is so much to be done in modernizing ocean shipping that close observers believe it will take years before the mechanization of cargo handling, the redesigning of ships and other improvements will make it possible for intercoastal and coastwise operators to get back the business they have lost to the railroads in the last decade.

Bright Spot

One bright spot in the industrial picture is the news that International Ramie Company are starting to build a $2,000,000 mill at Fowler, just south of Fresno, for processing ramie and cotton. The building will be 100 x 500 feet in area, and will house 11,600 spindles and 185 looms.

W. E. Clayton, head of the company, has been experimenting with ramie for several years and believes he now has a product that will compete with linens, making it possible, for example, to produce a pair of sheets and two pillowslips to sell at $25 where linen sheets now cost $29 apiece.

Ramie is being successfully raised in Louisiana and Florida, with mills in Switzerland processing the output. Mr. Clayton expects that with the completion of his mill much of the ramie will be shipped to California for processing.

Texas-California Pipeline

Pacific Gas & Electric Co. got its authorization from Federal Power Commission for its new gas pipeline from Texas without difficulty. El Paso Natural Gas Company was authorized to lay a line from the Permian Basin to the California border with about 80,00 0 horsepower in compressor capacity, at an estimated cost of $52,456,032, while P.G.&E. got permission to build 506 miles of 34-inch line from the border near Needles to its terminal near Milpitas, with 16,800 horsepower in compressor units and estimated cost of $55,519,000.

Incidentally, southern Nevada is much excited over the prospect of a 10-inch branch pipeline being taken off near Needles, traveling 100 miles to supply the big Basic Magnesium Project at Henderson, Las Vegas and other points. For fuel the area now uses butane, oil and coal.

An interesting peek into the home building situation is given by the San Francisco Bay Area Council. Currently private industry is building about 28,000 units a year in the area, which is substantially greater than the present estimated net yearly increase in number of families (approximately 15,000 a year).

The present supply of housing is 87 per cent of what it would be if the same ratio of housing to population existed as in 1940. At the present there is one family dwelling unit in the area for each 3.37 persons, as against 2.95 persons in 1940. To reach the 1940 proportion, there would have to be 886,000 dwellings instead of the estimated 777,000 of today. Population increased 51 per cent since 1940, but family dwelling units only 32 per cent.

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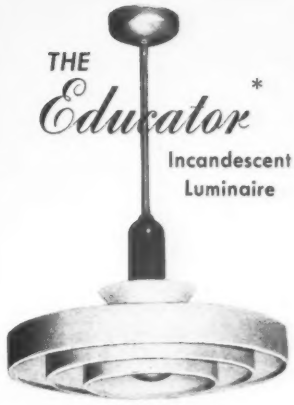

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REGIONAL REVIEWS
THE PACIFIC NORTHWEST

Northwest Opposes Columbia Basin CVA With Double Barreled Earful

Pulp and paper mills consider six-day week; Industrial fuels conference in Portland April 22 to cover price and supply situations

PACIFIC NORTHWEST—This area has dug itself out from under its worst winter season in half a century with things both better and worse because of the weather conditions.

Logging was at a standstill all winter, and many camps will be late in opening because of heavy snows and bad road conditions. Planting of a record crop of 8,000,000 trees from the industry nursery at Nisqually has been delayed two months by deep snows in the areas to be planted. The road repair bill in Washington and Oregon, even in the cities, is expected to be tremendous. Portland issued a rough estimate in February that it would take $1,000,000 to repair winter damage to its city streets. But the most serious damage has been to logging roads by excess moisture and freezing.

Advantages

On the other hand, the snowfall has served to increase the stream run-off and hydro-electric power supply should be much greater this season than last. Another advantage, for the lumber industry at least, is that stocks have been greatly depleted and log prices have held up very well.

Two other divisions of the forest products industry, plywood and pulp and paper, have some qualms about the coming season. Plywood mills have increased in capacity and number and supply caught up with demand last fall. This may mean sharp competition this season, but on the other hand the plywood mills, like the lumber mills, may find that the cessation of logging operations in the winter will give some strength to the market.

Buying Habits Change

Pulp and paper mills have been running on a seven-day basis for several years, as elsewhere in the United States, but there is considerable talk of a decrease to six days, on account of slackening off of demand. For a long time many items were on ration by the mills and were gobbled up as fast as offered. When taken off ration, however, a change in buying habits seemed to develop immediately, and these products now are in only normal demand.

Some large order cancellations have been reported, with the result that the customer is now pushing the inventory-carrying back on the mills, which in turn keeps its inventory in its wood pile or in the woods.

Favorable Signs

Signs on the favorable side include the hiring of additional thousands by Boeing Airplane Company in Seattle, up to a full crew objective of 24,000. From here on hiring will only be for replacements.

Reports that Pacific Car & Foundry at Renton laid off men recently due to the power shortage are unfounded. Shifts were rearranged to conserve power during the peak load hours of the day, but there was no curtailment of daily output.

During the past year Pacific Car has been rebuilding 250 refrigerator cars for Western Fruit Express and 500 for Merchants Dispatch. At present the work is 20 cabooses for the Alaska Railroad and 100 cars for Northern Refrigeration Lines. New contracts have been announced for 250 cars each for Northern Pacific and Western Fruit Express, with work to begin shortly.

Newsy Earful

If President Truman fails to get an earful of news that the Northwest is generally opposed to a CVA for the Columbia Basin development, it will not be the fault of Mayor Dorothy Lee of Portland and Governor McKay of Oregon. They and others met with Charles Murphy, White House assistant, in Portland on February 27 and gave him a good picture about the feeling of people in the area.

Murphy promised to carry the message to Truman of their opposition. He said it had been reported that the remote distance from Washington called for coordination of the several federal agencies in view of differences of opinion. David B. Simpson, past president of the Portland Chamber of Commerce, said that those present at the meeting had worked with these agencies and found no substantial differences of opinion.

A fuels conference covering the present and long range price and supply situation of industrial fuels will be held at the Multnomah Hotel, Portland, Oregon, on April 22, under the sponsorship of the Raw Materials Survey, Inc., and the Oregon Section of the American Institute of Mining and Metallurgical Engineers.

Available Fuels

The five fuels available to Northwest industry—coal, wood, electricity, gas and oil—will be discussed by specialists in each field as follows:

Coal: Stephen Green, Friday Harbor, Washington, a coal mining consultant; wood: Dr. Ed. G. Locke, Chief, Division of Forest Utilization, Pacific Northwest Forest & Range Experiment Station, Portland; gas: Wesley Cook, rate supervisor, Portland Gas & Coke Company; electric power: Ivan Bloch, consultant engineer, Portland; oil: T. C. Wellman, assistant Standard Oil Company of California, Portmanager, gasoline and fuel oil division, land.

George Gleeson, dean of the School of Engineering, Oregon State College, will summarize the panel and at dinner, Richard J. Anderson, Battelle Memorial Institute, will discuss the availability of fuels, trends in fuel costs and forecast the long range future developments anticipated in the fuel industry.

(Continued on Page 58)

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(Continued from Page 56)

In regard to the industrial waste disposal situation, Chester K. Sterrett, manager of the industries department, Portland Chamber of Commerce, recently appeared before the Oregon State Sanitary Authority to urge leniency for industries where no adequate technical methods have been developed to treat wastes economically. Paper mills were conducting their own research, he reported.

Mr. Sterrett suggested that the elimination of steam pollution might be speeded up in industries not adequately financed to pay for a complete waste treatment plant without impairing their capital structure. His proposal was that a method be worked out to have the state or some other agency construct the project, allowing the industry to amortize this cost with interest over a period of years.

Industrial Situation

The situation in individual industries is reported by Curtiss M. Everts, Jr., secretary and chief engineer of the Oregon State Sanitary Authority, in its biennial report just released as follows:

Pulp and paper mill wastes. Officials of the five mills on the Willamette River between Salem and Portland have installed such equipment as Sveen Pedersen Saveralls, perforated stainless steel blow-pit bottoms and similar equipment to prevent as far as possible loss of wood fiber. One mill planning to store all such wastes during the period of low stream flow. Other mills considering conversion to the magnesia base sulfite process and the recovery of the cooking chemicals, providing such a process at the Weyerhaeuser mill at Longview, Wash., proves successful. All of the companies participating in the national research problem of the industry. "While it would appear that the pulp and paper industry is cooperating with the Sanitary Authority, the latter is not satisfied with the progress that has thus far been made."

Cannery Wastes

Fruit and Vegetable Processing Wastes. Majority of the canning and frozen foods plants discharge their wastes into public sewer systems. Regardless of the method of final disposal or treatment employed, 40-mesh rotary or shaker type screens are used in practically every instance for pre-treatment of the wastes.

The city of Pendleton has recently installed a high-rate trickling filter as the first unit of a proposed pre-treatment plant for the wastes from the processing of peas at the Smith Canning Company. Average flow of these wastes into the Umatilla River during the processing season is approximately 1,000 gallons a minute, with a five-day B.O.D. of 1,000 parts per million. 40-mesh screens precede the trickling filter.

At Woodburn, wastes from the Birds Eye-Snider full line fruit and vegetable processing plant are pre-treated by means of a fine screen and three small lagoons. Effluent discharged into the Pudding River. More adequate treatment facilities urgently needed to prevent gross pollution of the receiving stream, at least during the late summer and fall months.

Flow of wastes from the processing and freezing of sweet corn at the Gresham Berry Growers Assn. plant was equal to 5,400 gallons per ton of green corn processed. One hundred tons of corn were processed daily. Because the industry was unable to provide proper treatment facilities for these wastes, it was forced to abandon the processing of sweet corn during the 1948 season. Studies are now being made to determine the feasibility of enlarging the Gresham sewage plant for the joint treatment of sewage and cannery wastes.

Treatment of prune washing and cherry bleaching wastes from the Hudson-Duncan plant at Dundee by means of primary sedimentation and chlorination was found to be unsuccessful and, therefore, the company agreed to carry out the instructions of the Authority and to install an industrial waste sewer for transporting the wastes to a suitable site for land disposal.

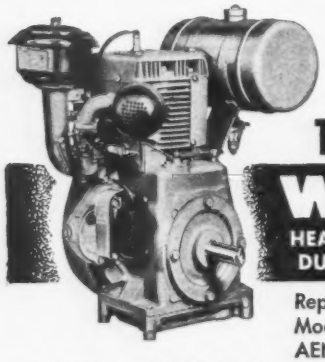
Tannery Wastes

Tannery wastes. Frontier Leather Company plant built in 1947 discharged 20,000 gallons of wastes daily into Rock Creek. Chrome process was being used to tan some 2,000 pounds of deer skin daily. In order to abate the pollution of Rock Creek, the tannery has been forced to cease operations until proper facilities can be provided for the disposal of the liquid wastes.

Flax retting wastes. Mostly disposed of by storage in lagoons. During the war 14 flax plants in operation with total capacity of 43,000 tons of fiber per season. Drop in price has caused most of these plants to cease operation.

Alcohol Plant

Springfield alcohol plant. Plant placed in operation in 1947 without approved waste treatment works, despite notification that adequate facilities for treatment of still bottom wastes must be provided. Plant shut down after short period because of operating difficulties. Discharge of these wastes would be 500,000 gallons a day. Experimental studies at Oregon State College indicate that the biochemical content of these wastes could be reduced only about 40 per cent by the growth of Torula yeast for the purpose of producing livestock feed high in protein. Adequate treatment methods must be found before this plant can resume operations.



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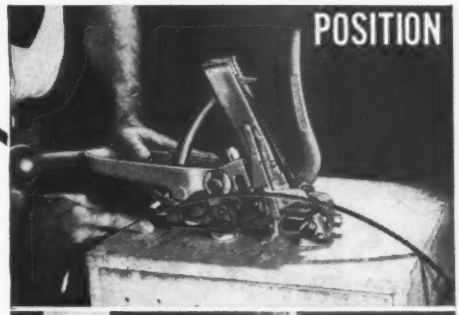

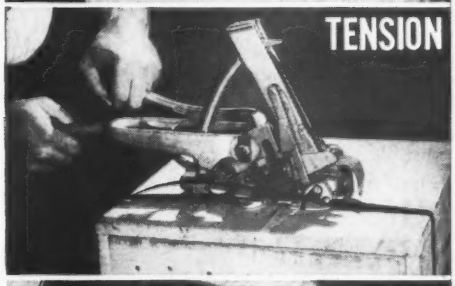

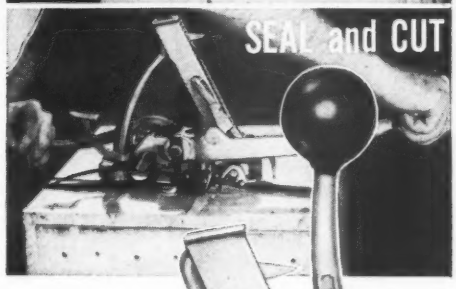

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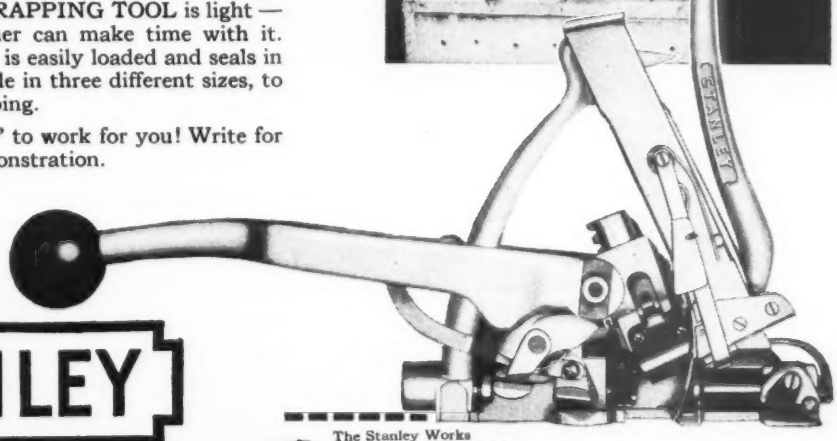

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REGIONAL REVIEWS
CONTINENTAL DIVIDE

In Spite of Record Snow and Blow Relatively Light Livestock Losses

Rocky mountain region airlines warming up for merry tussle over juicy Inland run; Oil industry shows how Western initiative works

DENVER—Were the big snows of January and February a disaster or a blessing? To some ranchers whose livestock perished, there is no doubt that the worst winter in more than 50 years was trouble, trouble on the double. But how extensive was the damage over-all? And were there some compensating blessings that alter the net result,

Without trying to be a Pollyanna or to see the bright side by ignoring half the facts in the case, an impartial observer can see that the story was overplayed in the picture magazines and newspapers, partly because this disaster was one of the most photogenic on record. For a time, while Congress was considering relief benefits for victims of the storms, everybody was content to picture the trouble in its worst possible light so that the poor devils could get some assistance. Everybody seemed honor bound to give the story top billing and to make the tragedy seem as much of a calamity as the human imagination could stand.

Light Livestock Losses

This correspondent questioned one of Denver's three leading authorities on general livestock conditions, whose name we'd better withhold for obvious reasons. He stated that the "usual" winter loss to livestock in the mountain and prairie states would average five or six per cent. How much did it run this terrible, terrible year? Maybe seven per cent, he said, certainly not to exceed eight per cent.

The difference between this year and the usual or average year might be wiped out completely by the time the year is out, he stated, by reason of several factors. Above all, the extra moisture from all that snow will convert semi-arid ranges into lush pastures, by comparison, adding millions of pounds to the weight of animals soon to be readied for market.

Losses in sheep and lambs would have been far greater but for the fact that the winter found sheep reduced in numbers to an unheard-of low point, for reasons that had nothing to do with storms. Nothing has been said about hogs, but with the world's all-time record corn crop just behind us, the hog output this year will be enormous. The amount of pork products consumed in this country runs about ten times the amount of sheep and lambs. It is too early to tell the results in terms of beef, the big meat crop, but it won't show any appreciable difference because of the great storm in the high plains and Rocky Mountain area. And with another record wheat crop now coming up, the northern Rocky Mountain and high plains region is heading straight for another national record in per capita spendable income, just as it scored in 1948.

Battle For the Inland

Airlines of the Rocky Mountain region are warming up for a merry tussle over the route northward from Denver through Cheyenne, Casper, Sheridan, Billings, and Great Falls to the Canadian and Alaskan wide, blue yonder. Industrialists are watching the struggle with eager interest.

It used to be Inland Airlines, and in those days it was about as much of an airline as the Burlington's Colorado and Southern tortoise-like railroad line along the same route is among railroads. During the war the service consisted of one airplane that valiantly ran all the way from Denver to Great Falls, turned around and ran all the way back to Denver—all in one day. It had to—there wasn't any other plane to "spell" it or split the load.

Western Air Lines took over Inland Airlines when Western was in the mushroom stage, and having Inland to look after provided a fine excuse for getting a Los Angeles-to-Denver permit from CAB. That turned into one of the jucier runs, of course, and before long Western sold it to United Air Lines. This leaves Western with a queer-looking spread, with its Inland route dangling from Great Falls like a great dipper that has lost everything but the handle.

But Western provides fine service and its Inland division is making money, which is more than some of its other operations are doing.

Plenty of other airlines would like to get their hooks on Inland, the favored artery of the oil men now beating a fine path up and down the Rockies all the way from Hobbs, New Mexico, to the Athabaska River country beyond Edmonton in northern Alberta. Challenger, a Salt Lake upstart which is coming up fast as a feeder line and may have ambitions to amount to something greater, would have a clear field in Wyoming if it could take over Inland.

Continental Air Lines, with excellent flights from Denver to El Paso, to Tulsa, and to Kansas City, fancies itself with a true transcontinental (north-and-south) run if it could get Inland. Unquestionably, Continental could keep Inland going in the fine style it has developed under Western operation—possibly even better, because Continental uses finer equipment on its runs than Western has seen fit to acquire for Inland.

Western Initiative

Much of the expected industrial development of the Rocky Mountain area has failed to materialize because of the very poor rail service. The oil industry in the same region is about the only industry that is forging ahead rapidly, and it is worth noting *that this is the one industry that can't be bothered to wait for railroad cooperation.* To move its products it builds its own common carriers—pipelines. To haul its equipment, it uses trucks that will tackle anything and go anywhere. And its personnel get where they want to go in airplanes, either those of scheduled airlines or private planes of their own.

Montana's low grade chromite deposits, which have endured an "on again, off again, gone again, Finnegan" existence, may pop back into the limelight with Russia's announced decision to reduce by 60

per cent its shipments of strategic chromite to the United States.

During the recent war, a $40,000,000 chrome mining development project was launched hurriedly and whipped into operation by the Anaconda Copper Mining Company, for the government. The mines are in the Beartooth Mountains of southern Montana near Columbus. Just when the piles of shiny black metal were beginning to look impressive, allied victories in the Mediterranean opened up sources of supply that made the Montana operation look needlessly expensive. So "America's most beautiful ghost town" was abandoned even more quickly than it had been constructed.

Now it may come back to life. This isn't an isolated case. If the "cold" war warms up very much, a lot of mining and other industrial operations in the West will be zooming into life again. However, nobody is holding his breath waiting for such windfalls.

Imports mean something else to oil men, particularly the independents who have no stake in world-wide petroleum operations. To the domestic oil man who sees his wonderful home market being invaded by oil produced by American companies in foreign field, "there ought to be a law." There ought to be a tariff. There ought to be something to keep the American oil industry at home in a healthy and flourishing condition, rather than letting it strangle and drown in a flood of cheaply-produced foreign oil.

It is a plausible story, and the independent oil men have the highest of motives in fighting for their survival. Unfortunately, they won't get to first base in any forseeable future, because Uncle Sam can't afford to start any tariff wars. The major oil companies, knowing they have the world by the tail, will refrain from twisting it and will behave like true gentlemen, cutting down on their imports sufficiently to still the clamor for a tariff, or at least to hold the ruckus to harmless proportions. Meanwhile, a lot of militant independent oil men may be badly worried and excited, even though making money hand over fist.

Gas Demand Up Heavy Oil Down

Civilian demand in California for light crude oil products (gasoline, principally) will probably show a 12 per cent increase by 1950, according to E. E. Pyles, president of San Joaquin Valley Oil Producers Association, at the group's annual meeting in Bakersfield.

By 1950, however, outlook for heavy oils in California is that total demand will be from five to ten per cent below 1948 levels.

Largely contributive to decline in demand for heavy oil, Pyles ventured, was rapid replacement of diesel equipment for heavy oil burning locomotives on Western railroads.

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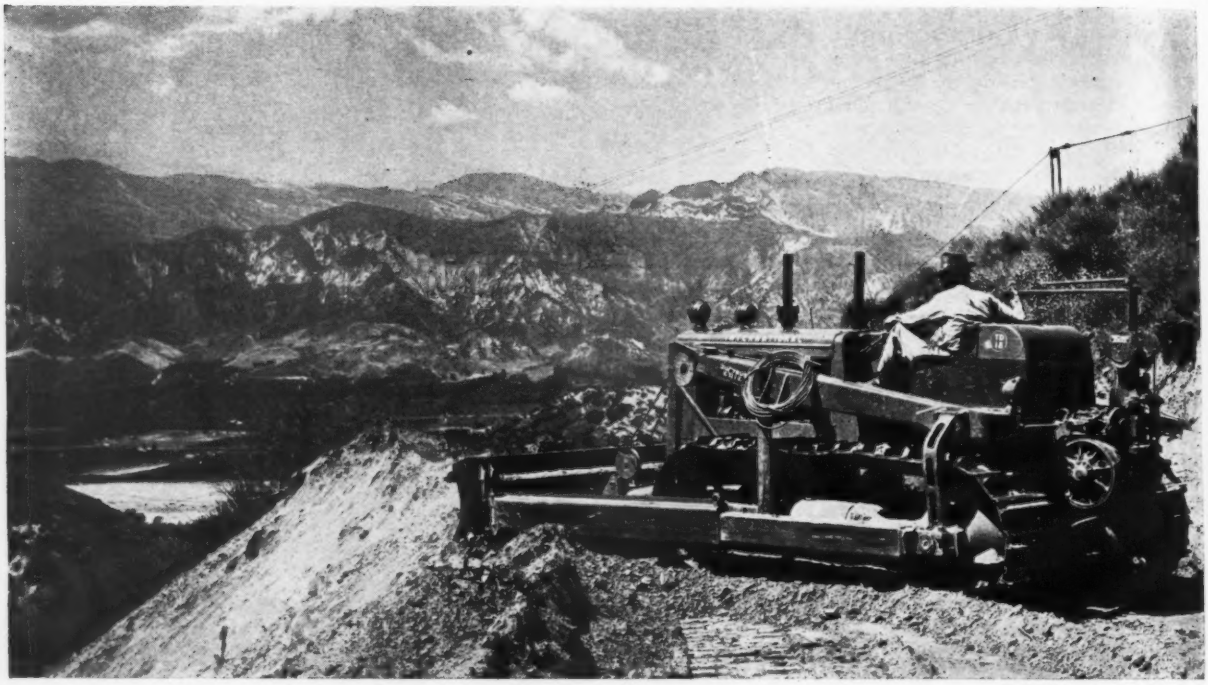

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REGIONAL REVIEWS
THE WASATCH FRONT

Industry and Unions Bury Handle Of the Hatchet in Lawmaking

Utah Power & Light company reposes on horns of powerful dilemma; Salt Lake City's smoke abatement program beginning to pay off

SALT LAKE CITY — Utah industry and organized labor recently completed another remarkable job of writing legislation by negotiation.

Both groups, recognizing that the state legislators had neither the time, the background nor the technical knowledge to revise the state's industrial compensation, industrial disease, and unemployment insurance acts, undertook to do the job themselves and then submit the results of their work to the lawmakers for ratification.

Labor knew that the legislature was too finely balanced to permit it to write its own ticket. And industry figured it could better afford to make some concessions to labor than assume the risks involved in a revision by a group of well-intentioned but inadequately informed legislators.

Committees representing the two groups first went to work on the unemployment insurance act, which involved a controversy over the payroll variation versus the experience rating plans. After months of study and compromising they came up with a version which both sides agreed to support in the current session of the legislature.

Labor started the bargaining on the industrial compensation and occupational disease acts by introducing into the legislature bills calling for compensatory increases far in excess of what they expected to get. Industry responded by accepting an invitation to negotiate. Again the committees emerged with amendatory bills and pledges of support from both groups.

The one point on which they could not agree was labor's demand that the acts be extended to cover employers of one or more employees (at present they cover employers of three or more employees). So the only thing the legislators will have to decide is this one disagreement. Otherwise the pending legislation will be approved by the relieved lawmakers as is.

Maximum weekly benefit under both acts was boosted to $25 per week plus five per cent additional for each dependent up to five. The present maximums are $22.50 for industrial accidents and $16 for occupational disease disability.

A new concession made by the employers was the inauguration of benefits for partial disability arising from an occupational disease. Heretofore only total disability has been compensated under this act. Industry embarked onto this uncharted economic sea with the realization that they might later have to back up, because of the difficulties of determining partial disability.

Power Jitters

Utah's private power industry is passing through an attack of the jitters because of electric power shortages in the southern part of the state.

Utah Power & Light Company has been keeping up with the demand in the territory it serves and has launched an expansion program calling for expenditure of more than $60,000,000 over the next few years. But small private companies in the southern part of the state have been lagging, with the result that neither industry nor agriculture can get the power it needs.

The inevitable result in the shortage area is a growing sentiment for public power projects, one manifestation of which was the recent introduction into the state legislature of a wide open public utility district bill. While the bill has little chance of passing, it was doubly disturbing to private power interests because three or four conservative Republicans were among the sponsors.

Squeeze on Both Ends

The effect has been to place the Utah Power & Light Company in an uncomfortable squeeze. If they expand into the shortage area the chronic private power critics will begin screaming monopoly. And if someone doesn't move in to supply the public demand the sentiment for public generation and distribution of power is sure to keep growing.

Utah Power & Light has not only been keeping up with demand in the area it served but has been making a sizable contribution to the public-power areas in the Pacific Northwest which have been short this winter. During January the firm fed 40,000,000 kilowatt hours into the northwest power pool for use in Oregon and Washington. This was approximately 34 per cent of the power contributed to the company's own customers.

No one knows just how hard the intermountain West's worst winter has hit the livestock industry. But it is known that the losses will be large. The manager of the Salt Lake Union Stockyards "guesses" that one-third of the sheep will be lost and that cattle on winter ranges have been even harder hit, percentagewise. He bases his guess on a few herds that have been "rescued" and sent through the yards.

Salt Lake City's smoke abatement program, based largely on voluntary cooperation of householders and industrial concerns, is showing some encouraging results. For a long time the project was something of a joke in the mind of the average citizen. But little by little the pall of smoke which once blocked off the sun from the view of city residents for two months at a stretch, has been thinned down.

This winter has provided a good test of the progress made. The intense cold has boosted fuel consumption and barometric conditions have been just right for heavy smoke concentrations. But despite these adverse factors, plus a sizable increase in the number of smoke producing industries, the smoke concentration has been 80 per cent less than it was during the winter of 1940-41. And this result was obtained with one-half as many smoke violation citations as were issued the previous winter.

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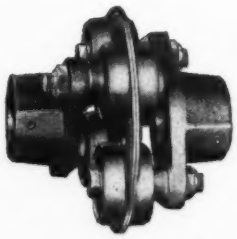
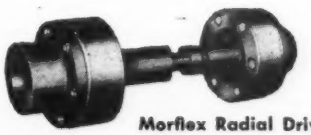


Morflex Couplings



Morflex Radial Drive Shafts

Morflex Drive Shafts

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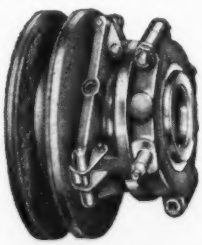
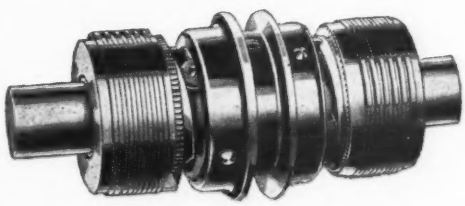
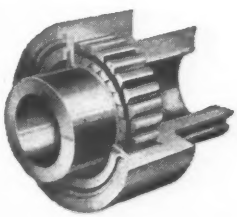


Morse-Rockford Over-Center Friction Clutches



Morse-Rockford Pullmore Clutches



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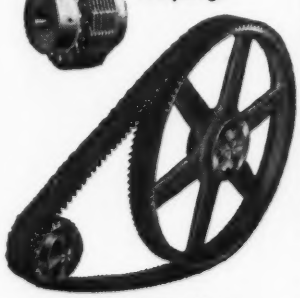

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909-M

Plate Glass Handled By Truck

A new kind of industrial truck now available is especially designed to handle safely large packs of plate glass and other materials that come in large sheets, like steel, asbestos, and building board. The truck body has basic fork truck design, but in place of a fork is an attachment from which is suspended a steel cable sling with padded stirrups for supporting the glass in transit, with an adjustable steel rubber-faced apron to form a backrest for the load. Elwell-Parker Electric Co., Cleveland, O.

910-M

Tiny Radio Transceivers Now Available

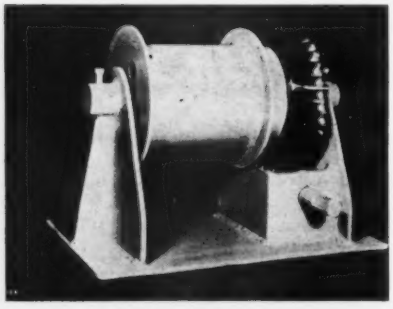
Portable radio transceivers for person-to-person communication are now available to the public and should have any number of applications for use in plant and the office and for communicating beween the two. The transceiver, two of which are required for person-to-person air contact, is housed in a tiny case measuring only 6 inches by 2⅞ inches by 1¼ inches, topped by a small folding antenna; a separate case about the size of a miniature camera contains a tiny headphone and batteries. The transceiver weighs 11 ounces and is one-fourth the size of the wartime walkie-talkie. Citizens Radio Corporation, Cleveland, Ohio.

911-M

Wrap Up Your Machine In A Paper Bag

Paper bags up to five feet high and 24 feet in circumference are produced by a newly-invented machine which accordian-pleats the bags so that they are delivered in a folded form only 6 inches wide. Flat-type construction will permit any individual bag size to be used for a variety of product shapes and sizes. Bags will be produced from a variety of kraft papers, including creped, waterproofed and jute-reinforced, with six standard stock sizes available, to begin with. They are designed for wide use in packaging large objects like furniture and major appliances. Sherman Paper Products, Newton Upper Falls, Mass.

912-M



Hand Operated Winch Is Self-Locking Type

New hand-operated winch put out by Atlas Industrial Corporation, Brooklyn, N.Y., is self-locking and designed to hold a load in any position. The new winch is of all-welded steel construction, with bronze or cast iron worm gear with steel worm. It has a capacity of one ton and can be motorized.

913-M

Ball Bearing Feature Of Floor Conveyor

Handling of paper rolls, or other heavy merchandise or stock, is designed to be facilitated through the use of a new type of floor trackage conveyor called the Angular Fan-tail, which works something like a turntable set in the floor, except that the unit itself is stationary, and the load easily turns in any direction on the movable balls set in the top of the Fan-Tail.

Made by Engineering Products Company, Chicago, Ill.

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914-M

Self-Propelled Hoists Feature Fluid Drive

Robbins & Myers, Inc., Springfield, Ohio, have now added a new fluid drive feature to their self-propelled hoists, through the use of a double-action hydraulic coupling, which eliminates jerks and jolts by absorbing shock loads and therefore insures smoother hoist travel on overhead systems. Manufacturers feel that the new drive will increase handling efficiency, prolong wear-life of the equipment, insure closer control of heavy, bulky loads.

915-M

Safety Hanger Lowers Light

For use with all types of inaccessible or high-level lighting fixtures is a hanger device on a chain which lowers the light to a level where the maintenance worker can either repair, service or clean it without danger from either ladders and scaffolds or from electrical hazards, as the fixture, when lowered, is "dead." The fixture is made by The Thompson Electric Co., Cleveland, O.

916-M

Recessing Tools Available In Smaller Sizes

Development and production of two new small size series 'R' recessing tools was announced recently by The Maxwell Company. Models No. 1 and No. 2 tools come in lengths of 2-13/16 and 4 inches as compared to standard tool sizes, which are 4-9/16 and 5⅛ inches, respectively. Manufacturers say the extremely small dimensions of these new tools permit their use in applications where larger recessing tools cannot be used.

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917-M

Screwdriver Converts Into Hammer

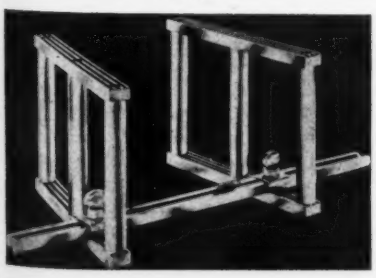
Two useful screw-drivers — the spin-Driver and the Speed-Driver, are being put out by Skamser Spindriver Corp., Long Beach, California. One on left, the Speed-Driver, has a push-grip control, handy for operating with one hand; one on right, the Spin-Driver, has on its shaft a dumbell-shaped hammerhead of hard steel, which, fastened at the top, serves as a weight to spin the screw driver. Fastened at end, it converts the tool into a hammer or a pry. Both have handles of clear yellow Tenite.

918-M

Continuous Conveyor Removes Waste Material

The Houdaille Conveyor collects, transports and discharges for disposal many types of solid or fibrous material which settle in the bottom of a tank or hopper-sediment, sludge, and the like. Settled material is picked up by steel-backed neoprene rubber flights mounted on an endless link chain and transported through a pipe to a hopper, where it is discharged into a cart for disposal. Manufacturers, Honan-Crane Corp., Lebanon, Indiana, say it has been adapted to many types of industries, such as soap manufacturers, packing plants, and metal working industries.

919-M



Parallel Units Hold Tools, Dies, Jigs

Injuries caused by makeshift methods on the job should be reduced by using the newly-available safety Parallel Unit made by Acro Die and Stamping Co., Chicago, Ill., to support tools, dies, jigs, etc., during various operations like drilling, counterboring, tapping, milling, and grinding. The unit comes in 3, 5, and 7 inch heights, with 20 inch spread.

920-M

Aluminum Sheeting Wound on Reels

Standard width corrugated aluminum sheeting is now available on reels. The sheeting has standard 1¼ inch corrugations running lengthwise, and large wooden reels protect the metal, making it easy to handle on the job. Manufacturers claim use of reels eliminates lap waste and labor of applying, since there are no laps to rivet or nail down when material is cut to exact lengths required. Industrial Sales Co., San Francisco, Calif.

921-M

Drum and Barrel Tilt Eliminates Hand Dumping

Palmer-Shile Company, Detroit, Michigan, now put out an improved drum and barrel tilt which completely eliminates hand dumping. It is turned by a worm drive, hand chain operated, can be turned to 360 degrees, and is designed for a standard 55 gal. drum or barrel, although special sizes will be manufactured, if desired. A special feature of this new device is that gear units are now housed in a steel case, keeping out dust, dirt, and metal chips and insuring longer gear life.

922-M

New Flooring Resistant To Acids, Fats

A new floor resurfacer, to be brushed or troweled over any type of floor, is especially intended as a protection for food or chemical plants in which the floor must be resistant to solvents and chemical corrosives, acids, oils, fats, etc. It comes ready-mixed in six gallon containers and, manufacturers say, can be walked on in six hours. Rock-Tred Corporation, Chicago, Illinois.

923-M

New Pallet Rack

A new pallet rack is being made by Equipment Manufacturing Company, Inc., Detroit, Mich., which, the manufacturers say, can be installed by anyone by merely spotting it in place with fork trucks, with no welding or cutting necessary. The rack permits the tiering of pallet loads to ceiling heights without tying up low-level goods; rack underclearances can be adjusted for varying pallet load heights, and rack levels can be raised to accommodate high loads by the use of removable extension posts.

924-M

Chain Conveyor Runs Under Floor

"Towveyor," made by Jervis B. Webb Company, Detroit, Michigan, is a continuous chain conveyor with the chain running in a steel slot below the floor. When a towing pin attached to conveyance to be moved is dropped into the slot, one of the pusher dogs spaced at intervals on the chain engages the pin and moves the machine along the Towveyor route. The Towveyor chain can be looped around all the warehouse and freight loading areas to be served. The convenient feature of the conveyor is that no part of its projects above the floor, and therefore, there is nothing to interfere with other plant traffic.

925-M

Box Clamp Attaches To Lift Truck

Hyster Company, Portland, Oregon, has recently developed a box-clamp attachment for use with their "Load-Grab" lift truck. The attachment includes box clamp arms for grasping the load, sliding side support assemblies which may be adjusted to fit boxes of varying size and an overhead stabilizer bar to insure accurate stacking. The box handler is especially appropriate for handling fruit boxes and crates or similarly packaged materials; it will carry loads up to 1,780 pounds and has a maximum "wingspread" of 62 inches.

926-M

Protective Coatings And Greases Removed

Manufacturers and others who must return to service equipment which has been stored away will be glad to hear about Buxite, a new emulsion-type solvent. Buxite is brushed over the entire area to be degreased, and then hosed off with water and detergent, eliminating the need of scraping. It is made by The Penetone Company, Tenafly, New Jersey.

HELPFUL LITERATURE

For the plant operator who wants to keep informed

2520-L

How to Recondition Steel Drums—"Cleaning Problems Solved in The Reconditioning of Steel Drums" describes a process of airless abrasive blasting in which the abrasive is hurled against the drum at high speeds, scouring away old paint, rust and dirt and sand and scale to make the drums re-usable and more attractive-looking. The booklet, in addition to other information, contains many on-the-job illustrated case studies. *American Wheelabrator & Equipment Corp., Mishawaka, Indiana.*

2521-L

Free Coupling Selector Offered—Draftsmen, engineers, designers, plant engineers and others concerned with selection and purchasing of flexible couplings will be interested in a new slide-rule type Coupling Selector available to them free from *The Falk Corporation, Milwaukee, Wisconsin,* which shows how to select couplings from Falk sizes 3F up to size 18F for different types of applications.

2522-L

Trackless Train—The "Trackless Train" system of materials handling invented by *The Mercury Manufacturing Co., Chicago, Illinois,* is described in a 16-page catalog just released. Full-page sketches of Mercury's line of industrial trailers for various purposes make up a large part of the book, with a suggestion sheet on what to look for in selecting the proper type.

2523-L

Hyster Straddle Trucks Described—Crated machinery on the move, lumber going from mill to storage, rough castings being handled in storage yards are all photographed and described in Hyster's new 16-page booklet showing the uses and applications of their new straddle truck. *Hyster Company, Portland, Oregon.*

2524-L

Conveyor for Packages—A sectional conveyor designed for the conveying of bottles, jars, cans, cartons and small packages is described in a four-page booklet from the *Horne Machinery Co., Inc., San Francisco.* Also described in the booklet are accessories for use in conjunction with the conveyor, such as a stationary table and vibrating settling devices for coffee, flour, spices, powders, etc.

2525-L

New Warehouse Directory Available—*The National Association of Refrigerated Warehouses, Washington, D.C.,* has just published a new Directory of Public Refrigerated Warehouses. The book contains complete listings of all the services and facilities of some 450 public refrigerated warehouses throughout the United States, its possessions, Canada and eight foreign countries. It also lists associate members of its association-suppliers to the refrigeration and perishable foods trades, with listings arranged alphabetically by states and cities for quick reference. Copies are available to concerns engaged in the production, processing, transportation, storage and marketing of perishable foods.

2526-L

Scaffold Brochure—Portable scaffolds made of aluminum alloy which can be quickly dismantled and carried from place to place or which can be assembled and then rolled from room to room on their castors are described and photographed in a four-page brochure put out by *Up-Right Scaffolds, Berkeley, California.*

2527-L

Materials Stack Up in new ways on Barrett storage racks; how barrels and drums can be stacked both vertically and horizontally to utilize plant space more efficiently is described in an interestingly-presented 16-page booklet just issued by *Barrett-Cravens Co., Chicago, Ill.*

2528-L

The Top of the Ladder can be a safer place to work when a ladder stage is hooked on to it to provide a safe working platform for plant maintenance men. A new four-page booklet describes the Juniata "Safety" Ladder Stage, and shows photographs of it being used in various types of operations. *Juniata Company, Pittsburgh, Penna.*

2529-L

Loading and Unloading of materials by hand in an outmoded type of plant caused bottlenecks and loss of time; how one building materials plant solved this problem through redesign of their plant and use of Towmotor trucks is described in Job Study No. 83, a four-page booklet put out by *Towmotor Corporation, Cleveland, Ohio.*

2530-L

Floor Trucks—A new two-color four-page bulletin includes photographs, descriptions and specifications of the Freighter, Warehouser and Handy Andy models of floor trucks put out by *The Rapids-Standard Company, Grand Rapids, Mich.* Specifications tables are included in the bulletin, listing platform sizes, model numbers, types of wheels and casters used and carrying capacities and weights.

2531-L

Cranes in Industry—A new 16-page bulletin entitled "Self-Propelled Cranes" illustrates 48 different applications of Lorain self-propelled cranes for industrial material handling and construction operations. The booklet, which consists mostly of photographs of the cranes on the job in plants handling such products as paper, pipe, oil, steel, rubber, lumber, concrete is put out by *The Thew Shovel Company, Lorain, Ohio.*

2532-L

How to Cut Cost of Battery Repairs—The care and maintenance of lead-acid storage batteries is described in a new four-page pamphlet released by *Pioneers, Inc., Oakland, California,* manufacturers of a compound for batteries known as AD-X2, the uses of which in prolonging the battery's life are thoroughly described in the booklet, which also contains a reprint of an article by one of their chemists which appeared in the October, 1948, *Western Industry.*

2533-L

Roller Bearing Knuckles on the steering gear are a special feature of the Clyde Handi-Crane, a small mobile crane designed for working in small areas, described in a four-page circular just issued by *Clyde Iron Works, Inc., Duluth, Minnesota.* The circular lists many possible uses for the crane in materials handling.

2534-L

German Industrial Management Studies—The efficiency of German industrial management methods is the subject of two reports now available to the public from the *Office of Technical Services, Department of Commerce.* One report deals with an experimental program undertaken by I. G. Farben for the improvement of supervisory personnel, and the other evaluates production control systems in German plants. The first, a 14-page report, is 50 cents, and the second, 40 pages long, sells for a dollar.

2535-L

"A Plant in Arizona" a newly printed brochure published by the Industrial Development Committee of the Phoenix Chamber of Commerce, describes what Arizona offers industry and the advantages of establishing a plant there, such as the state's central postiion in relation to expanding markets in Texas, New Mexico, Colorado, Utah, Nevada, the Pacific Coast and Mexico, the availability of power, raw materials, water and swift transportation, and the year-round mild climate.

2536-L

Copper Alloy Specifications Index—A new, up-to-date edition of "Copper and Copper Alloy Specifications Index" has been announced by *The American Brass Company, New York.* The first edition of this 28-page booklet was published a year ago as a time-saving convenience for those using standard specifications of engineering societies and government agencies. In two sections, the first part lists Anaconda's most generally used alloys, together with all applicable specifications. Section II lists specifications in numerical order with a brief description of materials covered as to grade, type, temper, anneal, etc. Both sections are side-indexed for ready reference.

2537-L

Electric Industrial Trucks Listed—All types of electric industrial trucks for specialized uses —models such as high and low lift trucks, aisle savers, platform trucks and those equipped with paper rollover attachments or automatic scoops are photographed and described in a four-page catalog from the *Crescent Truck Company, Lebanon, Penna.*

2538-L

Electric Hoists Described—*The Wright Hoist Division of American Chain & Cable Company, Inc., York, Penna.,* have just released a new 6-page folder describing their Speedway ½ ton to 10 ton electric hoists. It includes action photographs, illustrations of each type of hoist, cross sectional view of the hoist frame and complete specifications.

2539-L

Tied Up with Steel—Bundles of tools neatly tied up with steel strapping, cartons of foods strapped with steel, to be shipped by air, and even large propane tanks strapped up with steel bands are all described in Issue Number 22 of Acme Process News, which describes their method of steel-strapping to protect products in transit. *Acme Steel Company, Chicago, Ill.*

2540-L

Gravity Wheel Conveyors are covered in a new two-color 24-page catalog which presents a comprehensive picture of the specifications, data and capacities of the entire line of wheel conveyors put out by *Harry J. Ferguson Company, Jenkintown, Penna.*

Reading Guide For Western Management

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

Standard Business-Conference Technique

By Carl Heyel. Funk & Wagnalls, New York, 1948, $2.50.

Carl Heyel, assistant to the president of Lehn & Fink, has presented a handy book on a long-needed subject — the business conference. It is more than anything else a rule book, giving the do's and don'ts of conference technique in 136 rules. They cover in highly readable form every major phase — preparation, conduct, and follow-up. Tips on such points as squelching wise-crackers, reconciling differences of opinion, and sparking creative thinking, are described in a realistic and practical style. A complete cross index makes reference quick and easy.

Mr. Heyel defines a business conference as "a meeting whose purpose is a joint consideration and mutual discussion of a common problem or set of problems by persons qualified to have an opinion on one or more phases of the subject matter." When we think of it in that way (but in simpler language!), the business conference takes on a more important role in the business picture.

Standard Business - Conference Technique is a real contribution to the man who is responsible for planning and carrying out the conference; Mr. Heyel suggests ways of determining frequency of conferences, physical arrangements which offer the greatest possibilities, and rules for preparation, procedure, directing discussion, and employing illustrative and reference materials. He devotes considerable thought to the responsibilities of the leaders of the conference and the participants. He makes the conference a "teamwork" program rather than a one-man show.

Not a once-over-lightly volume to be read and filed, *Standard Business-Conference Technique* should be read and re-read. It should be a valuable guide for all management men who know the influence of the spoken word.

Reviewed by:
J. Roger Deas
Lecturer in Business Speaking.

Assessments of Men

By the O. S. S. Assessment Staff. Rinehart & Co., Inc., New York, 1948, $6.50.

Business and professional books seldom add much that is really new to our knowledge of the fields they treat. Too often they merely re-arrange and amplify data, multiply examples, explore divergent points of view or present facts in more readable form. Only rarely does a book appear which brings the jaded reader up sharp and causes him to exclaim: "Say, here's something really new, here's something important." *Assessment of Men* is such a book.

Office of Strategic Services was the most romantic of the agencies spawned by the war. The brain child of General William (Wild Bill) Donovan, it was set up by the President and Congress to gather strategic information about the activities and vulnerability of our enemies and to conduct destructive operations behind enemy lines. In carrying out the latter phase of its program, it had to train men to aid resistance groups and to disintegrate morale of enemy troops and encourage forces of the underground by means of radio, pamphlets and the like.

To do this, thousands of Americans had to learn special skills outside the sphere of civilian experience and put them into effect in what the authors term "the most inaccessible, least known and outlandish parts of this broad earth." Some means, therefore, had to be developed to screen out the unfit before valuable training time was wasted.

General Donovan assembled a staff of over 60 leading experts and directed them to come up with a workable program virtually overnight. Background and training of the staff varied widely. There were clinical psychologists, animal psychologists, social psychologists. There were sociologists, cultural anthropologists and psychiatrists trained in radically divergent schools. It soon became evident that the group could not agree on a common concept of what personality is so they agreed to discard theory and go to work.

They adopted a form of testing called the multiform organismic system of assessment. Instead of testing the various elements of personality and adding up the scores, they sought to test the whole personality in action through a series of situational tests in which the candidate was required to function at the same level of integration and under somewhat similar conditions as he was expected to function in the field.

In addition to situational tests, other devices were used to explore the candidates attitudes, drives and goals. On his first evening at the station he made out a Health Questionnaire, Personal History, Work Condition Survey, and Projective Questionnaire. These provided general background material. Vocabulary tests and other tests to measure memory retention and deductive powers were also used. Each candidate was also asked to evaluate the personality of his group mates and from these reports much valuable information was secured.

During the whole testing process, the candidates lived together, and with the staff, and were under constant observation. The observations thus made were reinforced by a clinical interview which often revealed traits that had failed to come to light during the testing program. In fact, the authors state: "There remains an interesting possibility for the future: that one could in time develop interviewing to give such high correlations with test and situation performance that ultimately the former could largely replace the latter." Coming from a group of psychologists, that statement is revolutionary!

What is the promise of this type of assessment? And why is this book important?

The staff believes that the techniques used could be developed into an extraordinary instrument for (1) advancing our understanding of personality; (2) training clinical psychologists and psychiatrists; and (3) selecting the most suitable persons for important jobs. It is in this last area that the program holds out great promise for industry.

To be sure, major modifications would have to be made to adapt the program to industry's needs. The techniques, however, exist and have been proved. In organizations where time, talent and money are spent in training selectees for future important posts, the assessment plan would often yield high dividends. In selecting men who will eventually be in positions to benefit or injure the cause of the organization they are serving, the techniques used might well pay off handsomely.

In reading this book you will find your imagination stimulated and your mental horizons widened. *Assessment of Men* is a landmark in the infant science of personality measurement.

Reviewed by:
Russell T. Sharpe
Lecturer in Personal Administration

Holiday Practices

National Industrial Conference Board, Studies in Personnel Policy No. 99, N. Y., 1948 (pamphlet).

It is estimated that industry pays out over one and one-half billion dollars annually in wages and salaries for holidays not worked. A company granting six paid holidays a year incurs an expense equivalent to 2 per cent of its annual payroll. This study examines the holiday observance and holiday pay computations of 265 representative companies.

The Annual Report

S. D. Warren Company, Boston (pamphlet).

To assist those who are charged with the responsibility for preparing and supervising the preparation of annual reports, this booklet offers an illustrated digest of several hundred annual reports. The first part presents examples of the elements that appear in the reports of numerous companies; the second part shows how different companies combine the elements into distinctive and individual presentations.

Reviewed by:
Berna M. Carlson
College Librarian

New Industrial Films and Filmstrips

Steel Construction

Title: "Building The Golden Gate Bridge."
Subject: Comprehensive pictorial presentation of construction of world's largest suspension bridge.
Length: 45 minutes.
Supplementary Information: 16 mm. sound film.
Available From: Bethlehem Pacific Coast Steel Corporation, 20th and Illinois Streets, San Francisco 19, California.

How Not To . . .

Title: "How *Not* to Conduct a Meeting."
Subject: Comedian Lemuel Q. Stoopnagel humorously illustrates many of the things to be avoided in planning and conducting a meeting.
Length: 10 minutes.
Supplementary Information: Sound motion picture.
Available From: General Motors Corporation, 1526 Financial Center Building, 405 Montgomery St., San Francisco 4, Calif.

Oil

Title: "Birth of an Oil Field."
Subject: How an oil well is drilled and crude oil brought up from the ground.
Length: 31 minutes.
Supplementary Information: 16 mm. sound and color; wall charts available for use with film.
Available From: Shell Public Relations Dept., 100 Bush Street, San Francisco, Calif.

Steel Making

Title: "Streamlined Steel."
Subject: Fast-moving picture of modern steel-making, step by step.
Length: 45 minutes.
Supplementary Information: 16 mm. sound film.
Available From: Bethlehem Pacific Coast Steel Corporation, 20th and Illinois Streets, San Francisco 19, Calif.

Safety

Title: "Watch Your Step."
Subject: Graphic action film illustrating seven cardinal rules for employee safety on the job.
Length: 11 minutes.
Supplementary Information. Sound-color-commentary film.
Available From: The Atchison, Topeka and Santa Fe Railway Co., 114 Sansome Street, San Francisco.

Electric Welding

Title: "The Story of A-C Welding."
Subject: Process of A-C welding explained, including close-up shots of arc in action.
Length: 2 parts, each 10 minutes.
Supplementary Information: 16 mm. color film.
Available From: Visual Education Division, General Electric Company, Schenectady, N.Y.

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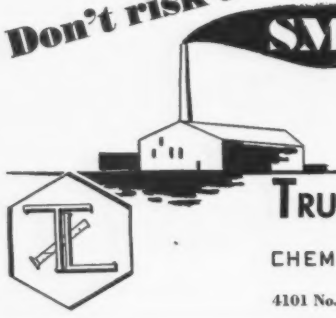

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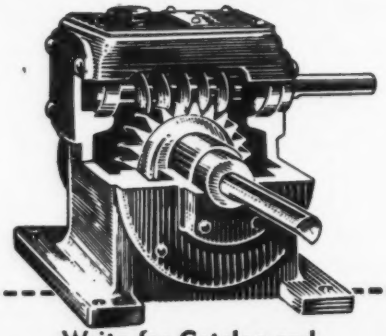

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Power Saw Lifts Operators' Wages

Introduction of the power falling and bucking saw, largely done during the war to overcome a serious manpower shortage in the Western lumber industry, has brought the former hard-laboring, semi-skilled employee, up to the point where he is the head man on pay-day in the entire industry.

According to a current series of wage earnings reports in the Douglas fir industry of Washington Oregon, and California, the pine industry of Oregon and California, and the redwood industry of California, made by the San Francisco office of the Bureau of Labor Statistics, these men working on piece basis (called "bushel-ing") earned last August the following:

No. of employees			*Average per hour*
455	Doug. fir,	fallers & buckers, power	$3.76
1001	"	buckers, hand	2.64
309	"	fallers, hand	2.44
471	"	fallers, power	3.45
746	West. pine,	fallers & buckers, power	3.29
256	"	fallers, hand	2.24
303	"	fallers & buckers, hand	2.01

General average earning, all employees, Douglas fir, $1.74; loggers, $2.10; mill workers, $1.63. Pine, loggers, $1.72; mill workers, $1.53.

The other highly paid workers found, with the exception of some piece workers, were highly skilled people. These occupations show the following earnings on a straight time basis:

	D.F.	*Pine*	*Red-wood*
Head Sawyers, band saws	$2.34	$2.15	$2.15
circular saws	2.30	2.07	2.05
Saw Filers	2.33	2.19	2.09
Lumber stackers for air drying (probably piece work)	2.47	1.87* 1.84**	1.77 1.68
Car and truck loaders	1.96	1.77	1.95
Machine off-bearers, lowest payroll rate found	1.50	1.41	1.54

**Kiln.* ***Air.*

Pacific Chemical Exposition

James O. Clayton, research associate of the California Research Corporation, has been appointed chairman of the Pacific Chemical Exposition, scheduled for November 1-5, 1949, at the San Francisco Civic Auditorium. Other members and their duties are: Donald W. Baldra, Schering Corporation, publicity; Lloyd F. Brooke, California Research Corporation, movies; Dorr H. Etzler, California Research Corporation, treasurer; Leo R. Gardner, California Spray Chemical Corporation, conference programs; Hans Lineweaver, Western Regional Research Laboratory, committee secretary; Miss Valerie Phillips, San Francisco College for Women, section lounge; L. W. Van Doren, Oronite Chemical Company, information; and Worden Waring, Shell Development Company, registration.

Smelters Escape Switching Charges

A permanent injunction was issued in January by a three-judge statutory federal court against the Interstate Commerce Commission, restraining the ICC from imposing switching charges against American Smelting & Refining Company smelters at Leadville, Colorado, and Garfield, Murray and Midvale, Utah, for movement of cars within the smelters.

These movements include the necessary services for weighing, thawing, sampling, and other terminal services which are customarily included in the line-haul rates. The excess costs which the ICC order would have required the AS&R to absorb would have totaled nearly $200,000 annually, and at Leadville would have amounted to more than $2 a ton of lead bullion produced.

Handle Carefully

A grass roots campaign to reduce freight loss and damage has been inaugurated by Union Pacific Railroad's freight claim department. It is based on a series of 12 posters directed to freight handlers, operating men and all others associated with the movement of freight, which will appear on bulletin boards at freight houses, yard offices and other strategic points along Union Pacific's 10,000 miles of track with a new poster appearing each month.

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Use These Powerful Facts to Support Taft-Hartley Act

THE facts refute Secretary Tobin's statement that the Labor Management Relations Act "has brought confusion to the field of labor relations.

It has reduced industrial strife and promoted the public welfare, without infringement of any essential and legitimate rights of labor.

During the first four months of 1947 immediately preceding passage of the Act there were 2958 strikes, as against 2130 strikes for the same period in 1948. The Bureau of Labor Statistics reports that the average hourly earnings of all industry workers increased from $1.236 in August, 1947 to $1.363 September, 1948. Since the passage of the Act union membership has shown a gain of more than 500,000 members.

Working Conditions Improved

Unions have also made great gains in improved working conditions and so-called fringe benefits such as holiday allowances, vacations, and participation in union welfare funds. When we consider that the majority of these gains were accomplished without strikes, it is difficult to understand how any one can contend that the Taft-Hartley law created labor instability or interfered with collective bargaining processes.

Since June, 1947, more than 2,000 collective bargaining agreements have been negotiated with a minimum of difficulty in San Francisco alone. The organization of which I am president deals with more than 300 labor unions. I can unhesitatingly say that the Act has contributed to improved labor relations in our area. It has been helpful in eliminating work stoppages and threatened boycotts.

Work Stoppage Stopped

For example, in the foundry industry in northern California prior to the adoption of the Taft-Hartley Law, there was an average of one unauthorized work stoppage per month. Since then there has not been a single unauthorized work stoppage at the plant of any of the 60 members of the California Metal Trades Association.

Contracts Not Outlawed

Mr. Tobin states that the ban upon the closed shop "has resulted in the outlawing of collective bargaining agreements which had been mutually beneficial to both labor and management and had assisted in the maintenance of industrial peace for a period of over 100 years." It is true that the Taft-Hartley Law did outlaw the closed shop provisions of many contracts. It did not, however, outlaw the entire contracts or disrupt established relations between employers and unions operating under closed shop contracts.

More than 50 per cent of our labor contracts in San Francisco contain the closed shop provision and approximately 40 per cent contain the union shop provision. With very few exceptions all of these contracts have continued in operation, and when terminated have been revised and extended in accordance with the law.

I agree that the requirement for elections to authorize a union shop where one already exists in most cases is an idle gesture, and I see no objection to amending the law to eliminate the necessity of an election after the first contract. In my judgment the transition from closed shop to union shop status has been accomplished with a minimum of industrial strife but with considerable grumbling on the part of labor leaders.

My principal objection to the closed shop is that it gives the union leader or the hierarchy in control of the union a complete monopoly over work opportunity and deprives the employer of his right to select workers on the basis of competence and suitability.

Political Machine

It converts a union into a political machine, in which each new worker is indebted to the officers in charge for his job. Act to permit self-determination of representation is often flaunted and nullified. The secondary boycott is such a powerful weapon that prior to the adoption of the Taft-Hartley Law in many cases no attempt was ever made to establish the right of representation. By threats or actual use of the secondary boycott a great many employers especially small ones, can be forced to grant closed shops irrespective of and often contrary to the wishes of their employees. The employer's only choice is to sign or face ruin by having his principal suppliers or customers taken from him.

Injunctions

Mr. Tobin lays great emphasis upon the evils of labor injunctions, but does not cite any facts to indicate that labor has been treated unfairly or injured by the carefully restricted use of the injunction which the Taft-Hartley Law authorized.

How To Prove That The Taft-Hartley Act Should Not Be Changed

Employers wishing to have facts at hand with which to combat the efforts in Congress to substitute a new measure for the Taft-Hartley Act will find good ammunition in the accompanying clean-cut, factual statement by Almon E. Roth of San Francisco before the Senate Labor Committee on February 4, 1949, opposing the bill now before Congress.

Mr. Roth is president of the San Francisco Employers Council of 2,000 members, has served as president of the Waterfront Employers Association of the Pacific Coast, as president of the American Shipowners Association, as an industry member of the National War Labor Board, and an an industry representative at the President's Labor-Management Conference in November, 1945.

Instead, he refers to our experiences in this country prior to the adoption of the Norris-Laguardia Act. The records show that the injunctive remedy provided for in the Taft-Hartley Law has rarely been used. Injunctions under the Taft-Hartley Law have been issued in only 21 cases. In six of these, the injunction was granted at the request of the President to prevent national emergency strikes.

Impartial Investigation

In all cases injunctions were issued only after full and impartial investigation of the facts and upon application of the Attorney General or the General Counsel of the National Labor Relations Board. It should be noted that the Taft-Hartley Law makes no provision for injunctions on the application of private parties.

Secondary Boycotts

President Truman himself has characterized secondary boycotts as "unjustifiable practices and abuses," but has limited his condemnation to secondary boycotts "when used to further jurisdiction disputes or to compel employers to violate the National Labor Relations Act."

The Secretary of Labor has referred to "unjustifiable" secondary boycotts. Personally, I know of no union cause which justifies wilful injury to innocent third parties. If there are any justifiable uses for the secondary boycott they should be spelled out in this Bill and supported by evidence of their justification.

Curb Excessive Power

Secretary Tobin complains that the ban against secondary boycotts has interfered with labor's organizational efforts. Of course it has. It was intended to curb certain excessive and unjustifiable uses of power by labor and in so doing has well served the public interest and protected innocent third parties.

There can be no possible justification for the use of a secondary boycott to force recognition of a union. The law provides a method for obtaining certification through orderly processes, and it protects the union against any unfair practices by an employer which might interfere with its legitimate organizational efforts. Its use to enforce compulsory membership in a labor union without proof of authority to represent the majority of employees clearly violates the purpose and intent of the Wagner Act, which is to guarantee workers the right of self-determination of their authorized collective bargaining agent.

Without Reason

I know of no reason why the aims of union organizers should be paramount to the rights of innocent third parties, or why such leaders should be vested with power to inflict injury upon innocent third parties with impunity.

Use of the secondary boycott against canneries, dairies, and other food processing plants prior to the adoption of the Taft-Hartley Law resulted in critical losses of food supplies. It puts the farmers at the mercy of ambitious labor organizers who seek to organize transit farm labor. If the provisions of this Bill are adopted in the present form you can expect a widespread use of this lazy man's method of organizing unions. Furthermore, we shall see a revival of the indefensible practice of imposing feather bedding and make work restrictions upon industry through the use of secondary boycotts.

If the law is passed in its present form without any requirement that unions, as well as employers bargain in good faith, the secondary boycott will again be used to impose unilateral terms and conditions of employment upon employers and workers without any pretense at collective bargaining.

The Taft-Hartley Law has unquestionably acted as an effective deterent to the unjustifiable use of the secondary boycott and in this respect has been a most stabilizing influence in the field of labor relations

U.S. Conciliation Service

I have dealt personally with the Conciliation Service for some 12 years and during that time the organizations of which I have been president have employed the services of that department in approximately 300 instances. I have discussed the work of the Conciliation Service with hundreds of employers and employer representatives. As a result of these experiences I strongly urge that the Conciliation Service be continued as an independent agency for the following reasons:

1. The effectiveness of the Conciliation Service depends in a large measure upon its reputation for impartiality.

2. An agency which is operated under the direction of the Secretary of Labor who is charged by law with the duty of promoting the interests of labor, in the very nature of things cannot be regarded by employers as impartial. The very nature of Conciliation Service requires that both parties have the utmost confidence in the conciliator and that they be willing to deal with him on a confidential basis.

ALMON ROTH
President, San Francisco Employers Council

Experience

I know from personal experience that it has often been difficult under the former set-up to persuade employers to accept conciliation or to extend their confidence to the field representatives of the Conciliation Service.

National Emergencies

I favor the retention of the present provision relating to national emergency strikes with some modifications, for the following reasons:

1. The provisions of the present law have been in effect for too short a time to fairly appraise their effectiveness.

2. The present procedures have proven reasonably effective. In only one out of seven cases where they were employed by the President, have they failed to prevent a national strike. This is a rather impressive record of effectiveness.

No Objection

I see no objection to the elimination of the requirement for the vote on the employers last offer, nor to the elimination of the Boards of Inquiry, which have contributed little to the settlement of disputes and in some instances they have no doubt interfered with the process of conciliation, as testified by Mr. Ching.

The President should be granted authority to ask for an extension of the cooling off period and for the establishment of an additional cooling off period in cases where, in his judgment, such an extension or a new cooling off period is advisable. The very possibility that the President might ask for an extension and the maintenance of the status quo would act as a stimulant for the settlement of disputes.

In some instances new issues may arise after the cooling off period has expired and a strike has been called, as in the case of the recent maritime strike. If the President had secured an extension or a renewal of the injunction in that case we would have been able to work out a settlement without the resulting hardship and losses.

I do not believe that the procedures for dealing with national emergencies provided for in this Bill will prove effective for the following reasons:

Not Effective

1. The Bill provides no effective method for delaying a strike. It is naive to expect that all labor leaders will respect the President's proclamation which amounts to

(Continued on Page 75)

GENERAL WAGE CHANGES IN PACIFIC - ROCKY MOUNTAIN REGION

NOVEMBER 16 TO DECEMBER 31, 1948

Compiled from various sources by Bureau of Labor Statistics, Wage Analysis Branch

CALIFORNIA	*Location*	*Date*	*Amount of Increase*	*Number of Workers*	*Other Economic Benefits*
Pacific Can Co.	Los Angeles	About 12/1	New scale comparable industry scale	70	Improved vac. and holidays. Shift premium 10% for 2nd, 15% 3rd
Essex Wire Corp. of Calif.	San Diego	11/29	8 per cent	144 journeymen electricians	8 paid holi., 2 wks. vacation, 8c differential for night shift
Consolidated Vultee Aircraft & Solar Aircraft	San Diego	11/24	14 cents		
Western Nipple Mfg. Co.	Los Angeles	Retro. 11/15	6½ cents	70	
Economy Steel Co.	Los Angeles	12/15	8-13 cents	35	
Eleven rock & gravel co's	San Bernardino	12/1	15 cents	150	
Venetian Blind Mfrs. Assn.	Oakland-S. Francisco	About 11/16	5c to learners, 7½c to others	350	Added vac. benefits
San Mateo Times	San Mateo	About 12/10	$10.50 per wk.		
Twelve lithographing companies	San Bernardino, Las Vegas, Los Angeles, Phoenix	12/31	$4-$8 per wk.	180	
American Potash & Chemical Corp.	Trona	12/1	11 cents		
Eleven tire & rubber co's	L.A. and vicinity	12/1	10-15 cents	150	
Coat & suit manufacturers	Los Angeles	12/17	5 cents		Improved health and vacation fund
Calif. Hand Print Co.	Los Angeles	12/27	Avg. 10c	136	Paid vac. and 6½ paid hol., plus ins. benefits
Boat builders and repair companies	San Diego	About 12/6	17 cents* **Add 5c effect'e 2/1/49 to journeymen*	1200	
California Condenseries	California	12/6	10c across board	Creamery, condensery and cheese workers	
C & H Sugar Refin. Corp.	Crockett	12/2	10c or 8 per cent, whichever higher	1380	
C & H Sugar Refin. Corp.	Crockett	11/30	do.	400	
Hunt Foods, Inc.	Santa Clara	12/6	7½ cents	125	
Pillsbury-Globe Mills	Sacramento	11/48	10 cents	Less than 100	
Cookie shops	Los Angeles	Retro. 8/22	6½ cents	Approx. 800	
Macaroni shops	Los Angeles	Retro. 8/22	7½ cents		
Pac. Greyhound Lines	Los Angeles	12/1	10 cents	160	6 paid hol. and double time if worked
Pac. Greyhound Lines	San Diego	11/1	10 cents		do.
Greyhound Bus Co.	Seven West. states	Retro. 10/24	10 to 14 per cent	3600	
Bay Cities Transit Co.	Santa Monica	About 12/1 (Retro. to 6/1/48)	8 cents	Bus operators and mechanics	
Transcontinental Bus System, Inc.					
Santa Fe Bus Lines	Seven West. states	Nov. '48	New rate 6½c mi.	300 drivers	
Eight members of Truck Owners Assn.	Eureka	Retro. 11/1	6 cents	Drivers	
Continental Air Lines	Nation-wide	Nov. '48	Avg. 20 per cent (approx. $35)	Hostesses	Extra pay for ground time; add. meal exp. and allow.; free uniforms after 1 yr.; night taxi allowance
American-Hawaiian S.S. Co.	San Francisco	12/3	12 cents	65	
Pac. American Shipowners Assn.	West Coast	12/6	9 per cent ($21 per mo.)	7000	
Pac. American Shipowners Assn.	West Coast	12/1	$21 per month	Firemen in offshore, intercoastal & Alaskan trades	
Pacific Tankers, Inc. and Coastwise Bulk Carriers, Inc.	San Francisco	Effec. 11/1	12½ cents	225	
Waterfront Employers Assn.	West Coast	About 11/29	15 cents (approx. 9 pct.)	15,000	Added vac. benefits
West Coast Waterfront & Ship Employers and ARA Co.	West Coast	About 12/3	10 per cent (approx. $29 mo.)	1000	
East Bay Hotel Assn.	San Fran. Bay area	11/1	50 cents per day	250	
Laundryowners Assn. of Alameda Co.	Oakland and vicinity	12/1	7½c per hour* **Add 2c effec. 3/1/49*	1250	

TAFT-HARTLEY *(Continued from Page 73)*

nothing more than a request that they maintain the status quo.

Unsatisfactory Provisions

2. The provisions for fact finding would be unsatisfactory. In practice the employer would be under great compulsion to accept the Board's findings whereas labor unions, if we can judge by past experience, would be likely to disregard the recommendations.

We had such experiences with fact finding in the railroad industry. In other words, in practice the process would likely be a one-way street. Neither do I favor compulsory arbitration.

Non-Communist Affidavit

Besides the non-Communist affidavit requirement, many other meritorious provisions of the Taft-Hartley Law which have been omitted from this Bill, including the restraint against intimidation of workers, requirement for filing by unions of financial statements, the requirement that unions bargain collectively in good faith, the so-called freedom of speech for employers provisions and others. I think it is a fair assumption that no attempt was made to justify the repeal of these desirable features because their deletion from a fairly balanced labor relations act cannot be justified.

It is generally recognized by both the public and labor that the non-Communist requirement has had a most helpful and salutory effect in pointing up and stimulating the efforts of unions to rid themselves of Communist influences.

NLRB Reorganization

It has been our experience on the Pacific Coast that the separation of the judicial and prosecutor functions of the National Labor Relations Board has increased its effectiveness and its prestige. The employers that I represent, and I believe employers generally, strongly favor the retention of the present setup of the National Labor Relations Board.

Oregon Safety Code Revised

The Oregon safety code revision has been completed and now awaits acceptance by the State Industrial Commission. Two paragraphs are of particular importance to Oregon lumber employers:

(1) Paragraph 8.24 which reads: "Employees required to work where overhead structures, equipment of materials create a hazard shall be provided with hard hats and are required to wear them at all times while so employed."

(2) Paragraph 9.28 which reads: "On or before July 1, 1949, all foremen, supervisors or persons in charge of employees shall have an approved current first aid certificate." (Exceptions are made in preparation time for newly promoted foreman and for temporary supervisors.)

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WESTERNERS AT WORK...

California

Z. G. Peck appointed regional director of the Glidden Company's Pacific Coast paint and varnish division. With Glidden since 1920, he has been the firm's regional director of the Adams and Elting division in Chicago for 16 years. Succeeds **Earl L. Ehrke,** who becomes supervisor of industrial sales for the Pacific Coast.

Arthur E. Stoddard elected president of the Union Pacific railroad, succeeding George F. Ashby, retired.

W. D. Davies succeeds **Henry Carmean** as manager Sutter Packing Co., Palo Alto. Latter advances to other executive duties in Safeway, of which Sutter is a subsidiary.

J. R. Pullen, for ten years plant manager Foster & Wood cannery at Lodi, returns after two years' absence since the company was sold to Stokely Bros. in 1946.

Floyd Snodgrass promoted to general manager Nordstrom Valve plant, Oakland, from assistant general manager.

John C. Bennett, Utility Trailer Co., Los Angeles, elected western vice president of Truck-Trailer Manufacturers Association.

W. H. Stevens will be general superintendent for California & Hawaiian Sugar Refining Company, in charge of both the Crockett plant and the reopened Potrero plant in San Francisco purchased a year ago from Western Sugar Refining Company when the Spreckels interests discontinued cane operations. **Carl L. Morse,** former superintendent for Western, becomes superintendent of the Potrero plant.

A. H. Rude, vice president of Aerojet Engineering Corp., named executive vice president of the firm. He also became managing director of General Tire & Rubber Co.'s California operations, replacing **Dan A. Kimball,** who is now Assistant Secretary of the Navy for Air, recently appointed by President Truman.

Engineering staff of the California Aeronautics Commission has made the following appointments: **W. B. Whisenand** to Airport Design Engineer for northern California; **Charles M. O'Donnell** to Airport Planning Engineer for northern California; **Ray Maurseth** to Airport Design Engineer for southern California. An Airport Planning Engineer for southern California will be appointed in the near future.

David C. Patrick becomes personnel manager of **W. P. Fuller & Co.** He has been with the firm for the past 12 years, recently serving as special assistant to the president on personnel matters.

Dr. Kenneth T. Ferrell named to head operations at Sardih Products Co., Turlock plant, succeeding **Barney York.**

A. A. Lowe, superintendent of safety in six western states for Southern Pacific, has retired after a 44 year railroad career.

Edwin A. Olson, formerly assistant freight traffic manager with the Soo Line Railroad, has been named general traffic manager for Libby, McNeill & Libby, food canners. He replaces **A. W. Bankert,** retired.

Dr. Theodore W. Evans steps up from manager to director of research at the Emeryville laboratories of Shell Development Co. He is succeeded by **Bruno Stolley,** former assistant manager of personnel for Shell Oil Co. in New York.

Charles Ahern appointed assistant vice president and general manager of Pacific Fruit Express. **A. L. Holst,** superintendent of the car service department in Los Angeles succeeds Mr. Ahern as assistant general manager of the car service department.

Paul C. McMillan named manager of Consanto Chemical Co.'s new Export Sales Department office at 111 Sutter St., San Francisco.

R. C. Thumann (left) graduates from executive vice president of United Employers to president of the organization. Succeeds **Ford M. Tussing,** president since April, 1946, and who will now act as chairman of the board. Thumann joins Paraffine Companies staff as director of labor relations and personnel, but will devote a part of his time to United Employers as non-paid president. **E. A. Woodside** (right), United Employers' chief negotiator since April, 1946, becomes manager of the employer group.

Charles W. Lang assumes post of research and development engineer for Engineering Controls, Inc., Los Angeles. **Ralph A. Chamberlain** joins the firm as sales engineer; **R. E. Douglas** promoted to assistant to the president.

Sheldon Allen, assistant treasurer of Leslie Salt Co., named secretary of the firm succeeding **J. S. Elkeman.**

Walter K. Hines moves up from general sales manager to general manager of Sun-Maid Raisin Growers, Fresno, following retirement of **William N. Keeler.** Assistant general manager is **Carlos Phillips,** formerly controller.

Dr. Edward L. Kropa joins Borden Co.'s chemical division as chemical director.

James H. Curtis, manager of General Petroleum Corp.'s Torrance refinery, appointed manager of refineries in the firm's manufacturing department He will supervise all company refining operations. **A. E. Thompson,** who has been assistant manager, steps up to manager of the Torrance plant.

Globe Products Manufacturing Co. make the following appointments: **W. B. Merriam,** executive vice president, elected president of the firm; **R. E. Lockhard,** sales manager, elected vice president in charge of sales; **Thomas O'H. McArdle,** formerly with the Lynn Co. in Burbank, now heads Globe's contract division.

D. L. Swinnerton promoted to Apex Steel Corp., Ltd. executive vice president; **Robert S. Grover** upped to vice president and treasurer; **D. L. Robertson** becomes vice president in charge of sales.

David E. Eichelberger, vice-president of American Marietta Co., becomes president of the firm's subsidiary, Leon Finch, Ltd., Los Angeles, succeeding **Leon Finch,** retired. Eichelberger will continue to direct all the company's Pacific coast divisions—Schorn Paint Manufacturing Co., Seattle, and the adhesive, resin, and chemical divisions located in Seattle and Vancouver, B. C.

Douglas E. Bryant, formerly New England technical representative for Rohn & Haas, named manager of Leon Finch, Ltd.

John J. Sullivan becomes manager of personnel for Southern Pacific, replacing **John G. Torian,** retired after 42 years with the firm.

H. Z. Baldwin, secretary of California Packing Corp., retires after 44 years' company service. **N. A. Hollister** elected secretary and assistant treasurer in his place. **A. L. Croce, A. J. Wallsten,** and **H. L. Stewart** elected assistant secretaries.

Colorado

Jack Munroe, veteran Colorado truck and machinery dealer, named president of Dean Gillespie & Co., Denver. **Rod St. Clair,** affiliated with the firm since 1947 but formerly assistant general manager of Colorado Springs Transit Co., becomes vice president.

Oregon

G. Robert Dodson elected treasurer of treasurer.

D. B. Leonard appointed assistant general manager of Pacific Power & Light Co. in charge of Oregon operations outside of Portland. He succeeds **Charles M. Sanford,** who, prior to retiring, will act as consultant to the president.

James T. Gow joins Electrical Steel Foundry Co. Portland, as chief metallurgist. Will have complete charge of all phases of the foundry's metallurgical department, covering sand control, chemical control, physical testing, radiograph inspection, case studies, melting and pouring, field calls and assistance, and research.

Utah

Kennecott Copper makes the following promotions: **Ernest C. Simkins** from first assistant track foreman to general hill foreman at the open pit mine; **John O. Neimi** from second to first assistant track foreman, replacing Mr. Simkins; **S. A. Gudmundsen** to second assistant master mechanic in the shops. Mr. Simkins succeeds **J. C. Landenberger Jr.**, who was recently upped to director of labor relations.

Howard G. Pelletier, general freight agent for Union Pacific railroad at Salt Lake City, appointed general agent with headquarters at Fresno, California. **Fred L. Morgan**, foreign freight agent at New York City, will replace Mr. Pelletier at Salt Lake City.

Washington

F. D. Helversen steps up from divisional industrial engineer for Crown Zellerbach's three Western Waxed Paper converting divisions, becomes chief industrial engineer for C.-Z. Succeeds **B. F. Warren**, who becomes converting manager of the Crown-Zellerbach mill at Camas, Wash.

Reg Plymire upped to Puget Power Co.'s assistant to the executive vice president, reporting to **L. E. Karrer. Charles C. F. Terrell**, in charge of Puget Sound Power & Light operations, and handling labor relations. He is considered the best informed layman on atomic energy.

F. G. Brooks, supervisor of branch office organization for Marshall-Wells Co., appointed manager of Seattle branch. He succeeds **George S. McQuade**, who was named Duluth branch

Wyoming

John C. Miller, since 1943 a staff assistant at Medicine Bow national forest, has been transferred to the Grand Mesa forest in western Colorado in a similar capacity. He is succeeded by **Phillip Heaton**, who has been a staff assistant and district ranger on several Rocky Mountain region forests.

John R. McNulty has resigned as division director of personnel for the Ohio Oil Company at Casper, to take position of manager of industrial relations for Husky Refining Company at Cody.

Associations Elect:

California State Brewers Institute—**Karl F. Schuster**, president of Acme Breweries, reelected to 14th consecutive term as president; **James H. Hamilton** reappointed secretary.

National Association of Educational Buyers—**D. L. McNamara**, USC, elected chairman of southern California region.

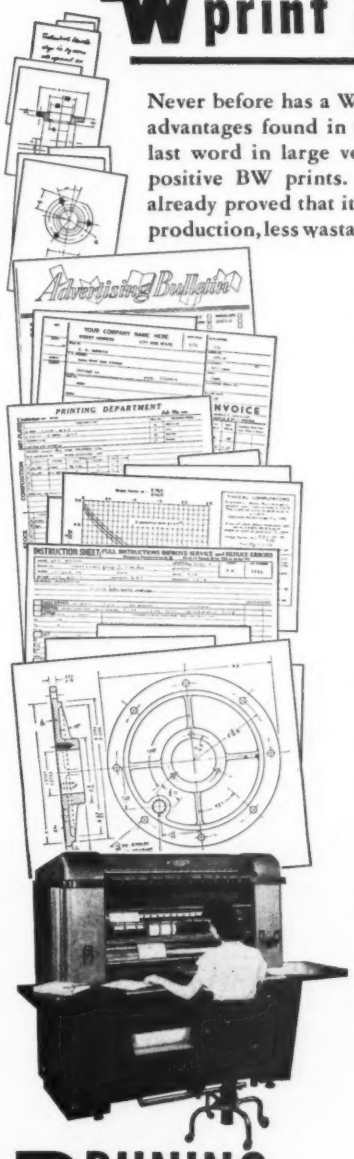
National Wool Growers Association—**Howard Vaughn**, Dixon, Solano county, elected president; **Art Bohosky**, Yakima, Wash., vice president replacing Vaughn; vice presidents relected include **T. C. Bacon**, Twin Falls, Idaho; **Harry J. Devereux**, Rapid City, S. D.; **Ray W. Willoughby**, San Angelo, Texas; **John A. Reed**, Kemmerer, Wyoming. **J. M. Jones** of Salt Lake City reappointed secretary.

Central California chapter of Associated General Contractors of America—**Art B. Smith**, vice president of Engineers, Ltd. and a partner of Swinerton & Walberg, elected president; **Harold O. Sjoberg**, vice president; **Carl N. Swenson**, treasurer; **William E. Hague**, secretary-manager.

Western Frozen Food Processors Association—**James O. Dempsey** (Dempsey-Hudson Packing Co.) renamed president; **Mel K. Spigel**

(Continued on page 78)

large volume BW print production



Never before has a Whiteprinter been able to offer you all the advantages found in this new Volumatic Model 93. It is the last word in large volume production of high quality direct positive BW prints. Advance models of this machine have already proved that it reduces reproduction costs . . . by faster production, less wastage, lower maintenance, simpler operation.

It has countless uses. The Volumatic, like other Bruning Whiteprinters, produces sharp, highly legible copies of engineering drawings and documents . . . anything that is printed, drawn, written or typed on a translucent medium. Its uses increase daily as more and more business and industries turn to the BW Process to eliminate the costly practice of transcribing documents, forms and records of all kinds.

It is extremely versatile. The Volumatic Model 93 produces sharp BW prints from post card size up to 42-inches wide and unlimited length. You can have light, medium or card weight prints . . . prints on tinted stocks . . . prints on film or cloth . . . prints with colored lines.

Anyone can operate it. The operation of the BW Model 93 has been simplified to the point where a girl can learn to operate it in less than an hour.

Faster operation. The new Bruning Volumatic produces BW Prints at speeds up to 105 square feet a minute. The prints are delivered dry and ready for instant use.

Completely odorless. The BW Process is completely odorless. BW machines do not require outside ventilation or exhaust ducts. They can be installed *anywhere* without offense.

It is mobile. There are no pipe or plumbing connections to tie this machine to one spot. It can be moved easily to convenient locations.

Uniform quality control. BW Model 93 automatically and instantaneously coordinates developing and printing speeds. Changes in printing speed never result in over or under developed prints. A further safeguard to quality is Bruning's built-in constant voltage transformer which assures uniform operation of the machine although line voltages may vary from 190 to 250 volts AC.

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(Continued from Page 77)

(Spigel Farms, Inc.) vice president; K. G. Eberts (Honor Brand) succeeds Charles Collins (Frostcraft Packing Co.) as treasurer.

Independent Refiners Association of California—C. A. Johnson (Holly Development Co.) elected president; D. B. O'Neill, vice president and general manager; William F. Barshfield, vice president; N. D. Taylor, secretary-treasurer.

Rocky Mountain Oil Industry Information Committee: Paul Hirth, Continental Oil Co., manager. Executive committee: Louis G. Wilke, Phillips Petroleum Company, vice-chairman; L. L. Leabo, Denver, Bay Petroleum Corporation, Colorado chairman; C. J. Westcott, Boise, Idaho, Westcott Oil Company, Idaho chairman; Branson G. Stevenson, Great Falls, Montana, Socony-Vacuum Oil Company, Montana chairman; H. A. Wallace, Salt Lake City, Utah Oil Refining Company, Utah chairman; E. T. Storey, Cheyenne, Standard Oil Company (Indiana), Wyoming chairman. Segment chairmen: C. W. Overton, Carter Oil Company, marketing; H. A. Stewart, production; R. B. Wilson, transportation, all of Denver; Dr. C. C. Buchler, Casper, Standard Oil Co. (Ind.), refining.

General members: M. H. Robineau, Frontier Refining Company; John R. McCusker, Red Dot Oil Company, both of Denver; Glenn E. Nielson, of Cody, Wyoming, Husky Refining Company; and Melvin J. Rupp, secretary.

Western Pine Association: president, E. C. Olson, E. C. Olson Lumber Co., Spokane; vice-presidents, U. R. Armstrong, Hallack & Howard Lumber Co., Cascade, Idaho; M. R. Prestridge, M. R. Prestridge Lumber Co., Alamagordo, N. M.; treasurer, M. W. Myers, Shevlin-Hixson Lumber Co., Bend, Ore.

Waterfront Employers Association of the Pacific Coast and the Pacific American Shipowners Association re-elect Frank P. Foisie, president of the WEA and J. B. Bryan as Pacific American Shipowners Association president.

All other officers of the two organizations return to office. They include: Henry Clark, vice president; J. A. Robertson, secretary; K. F. Saysette, treasurer of the Waterfront Employers Association; and for the Pacific American Shipowners Association, W. L. C. Brown, vice president; R. M. Pierce, secretary; and K. F. Saysette, treasurer.

Donald Watson, San Francisco manager of the Weyerhaeuser Steamship Company, replaces Gerald A. Dundon, vice president of Pope and Talbot, as WEA vice president. John Cushing, president of the Matson Navigation Company, elected to the PASA vice presidency, replacing Thomas Plant, former vice president of American Hawaiian Steamship Company, retired.

Vacation and Sick Leave Analysis

An analysis by the California Division of Labor Statistics and Research of 1,241 agreements indicates that 1,106 contracts, or 89 per cent of the total, granted paid vacations. In manufacturing industries, 98 per cent of the contracts granted vacations. In 1941, the total was 54 per cent.

Nearly 20 per cent of all contracts analyzed in 1948 provided for sick leave with pay, compared with 12 per cent in 1944. Agreements granting sick leave with pay during illness were found in 36 of the 45 industry divisions covered by these contracts.

U.S.A., NOT USA

If American business has its way, world markets will never again be swamped with manufactured articles labeled "Made in USA" but actually produced in a Japanese town so named in order to fool the customers. Recommendations, designed to govern Japanese trademarks, patents and copyrights in the post-war era, are being submitted to Washington by the Far East-America Council of Commerce and Industry, Inc., of which Charles Kendrick, president of Schlage Lock Co., San Francisco, is national chairman.

This is because recent SCAP directives authorize the Japanese Patent Office to accept applications by persons outside Japan for patents, utility models, designs and trademarks.

Naming a town "USA" in order to palm off cheap Japanese goods as American-made in overseas markets was only one of the dodges employed to gain unfair competitive advantage, the Councils' report indicates. Often the Japanese government approved for use by Japanese firms trademarks that were almost identical with well-known American or other foreign trademarks which had gained wide acceptance throughout the world, including Japan. Similar changes in Japanese law recommended by the Far East-America Council provide that every such "act or deed contrary to commercial good faith or to the normal and honorable development of industrial or business activities" shall be prohibited.

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Wholesale mill work plant in Southern California. Successfully operated fourteen years. Presently producing specialty and standard mill work items with nation wide distribution through 39 long established firms. Company financial statements will substantiate past, present and future business. Average annual sales approximately $750,000 resulting in annual average profit in excess of $100,000. Modern plant and new equipment, spur, warehouse and yard facilities, all sufficient for present business and will accommodate future growth. Excellent opportunity for mill outlet for all grades of pine. Complete data will be furnished only to qualified purchasers.

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"We turned

THREE *big jobs*

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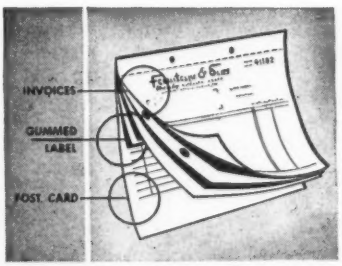

Here it is . . . the UARCO E-Z-Out Form that turned three jobs into one. Top three sheets are invoices and office copies, varicolored for spot identification, one punched to slip into binder. Next is the gummed label, perforated for quick removal. And finally the business reply card, perforated and printed on both sides. The UARCO E-Z-Out is a complete set, glued together, with carbons preinserted. Completed, it separates with one swift motion.

It used to be a big job for three girls—one typing invoices; another, gummed labels; and the third, business reply cards.

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SINGLE SET FORMS

AUTOGRAPHIC REGISTERS AND REGISTER FORMS

WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

Rolland R. Whiteman, appointed General Sales Manager for Blake, Moffitt & Towne's wrapping paper division. He will be in charge of wrapping paper sales and purchasing activities for the firm's entire chain of 18 houses. He is succeeded as sales manager of the Los Angeles department by **Robert Armstrong**, upped from assistant sales manager.

L. M. Rasmussen becomes manager of General Electric X-Ray Corp.'s San Francisco district office.

Verne Breitenbucher appointed vice president in charge of sales for M and M Woodworking Co., Portland.

E. W. Philleo, General Electric X-Ray Corp., named manager of the Pacific region, with headquarters in San Francisco. His territory includes all of California, Atizona, Oregon, Washington, western Nevada, and Alaska.

Mel Miller, whose office is at 833 S. Spring St., Los Angeles, named western sales manager for Youthcraft Creations, Inc., of New York, manufacturers of foundation garments, to serve the 11 Western states. Youthcraft is one of the latest easterners to set up a Western distribution outlet.

E. L. Phillips, formerly assistant sales manager for The Cold Metal Products Co., Youngstown, Ohio, becomes sales manager of the firm's Western warehouse division, at Los Angeles, serving the Pacific coast.

Stanley A. Page returns to General Steamship Corp., Ltd. as passenger traffic manager. He replaces **Herbert P. Wynn**, resigned, who is now general passenger agent of Delta Line, which is represented in the West by General Steamship Corp.

W. R. Windfield is now Graybar Electric Co.'s northwestern district operating manager, with headquarters in Seattle. He replaces **J. R. Ernest**, transferred to southwestern district, with office in Kansas City, Mo.

Harry Greve named service manager for White Motor Company's Los Angeles branch. For the past year and a half of his fourteen years' association with the firm, Greve has been shop superintendent for the service department.

W. R. Wieschendorff becomes district manager of Dearborn Chemical Co., with Western district offices in Los Angeles.

Jack McKenzie named Cutter Laboratories' new Denver sales manager; **John Conter**, Seattle, named veterinary specialist in that district.

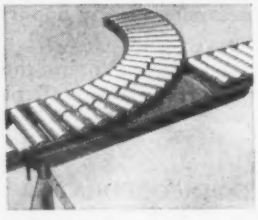
R. B. McElroy, residential sales manager for Washington Water Power Co., promoted to acting sales manager.

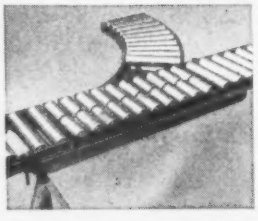
Frank L. Willis, Los Angeles, appointed assistant West coast sales manager for Holly Sugar Corp., with headquarters in San Francisco. **Paul J. Ryan** promoted to retail sales supervisor. **Edgar W. Flavell** named head of newly created sales engineering department.

Edward Butts, Jr., Pacific coast manager for Stein Hall & Co., has resigned to become San Francisco manufacturers' agent of firms supplying paper mills and paper converters.

Edwin A. Olson named general manager for Libby, McNeill & Libby, headquartered at Chicago. He succeeds **A. W. Bankhert**, retired.

"FLEXA-CURVE"
The NEW VARIABLE
ANGLE
SWITCH





FLEXA-CURVE is a natural for "switch-in-line" applications. It affords a combination of spur and curve for "take off" on main conveyor line, and can be used with curve section for greater angle. Flexa-Curve can be furnished with foot switch pedal or electric eye switch.

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Fig. 421—LIVE SKID has two load-carrying wheels near one end, and steel legs at the other end.

WITH FIG. 419 JACK the skid is easily pulled or pushed. An ideal "set-up" for factories, warehouses, etc.

Skids have hardwood platforms bound at ends with angle steel; roller bearing wheels, pressure lubricated; Semi-steel or rubber-tired wheels. Made in all sizes, with any special racks desired.

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H. H. McVeigh.....West 310 First Ave., Spokane 8, Wash.
Equipment Supply Co.....60 Richards St., Salt Lake City 1, Utah
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our 58th Year
NUTTING TRUCK and CASTER COMPANY
1720 DIVISION ST., FARIBAULT, MINNESOTA

G. A. Barnes appointed district representative for heating sales of General Electric Co.; **N. E. Donaldson**, local representative for air conditioning department, with headquarters at San Francisco.

L. C. Hult, Denever, named Western sales manager for Royal Typewriter Co., with district office in Denver.

John Hester and **L. F. Miland**, Western Merchandise Mart (San Francisco) appointed West coast sales representatives by Martin Brothers, children's clothing manufacturers. The territory covers California, Washington, Oregon, Arizona, New Mexico, Nevada, Utah and Idaho.

Hanford Haynes takes charge of Consolidated Western Steel Corp.'s new sales office in the Exchange Bldg., Seattle. He will serve the Pacific northwest.

William A. Schaub named manager of the Denver district of Industrial Products Sales department of B. F. Goodrich Co.

Paul Burroughs, formerly purchasing agent for Equipment division of the Kay Brunner Co., added to the order department staff of Baker Steel and Tube Co., Los Angeles.

John S. Moore becomes Hudson Sales Corp. district manager, with Portland, Oregon headquarters.

Dick Crowle transferred by Standard Gypsum Co. of California to Sacramento sales office; **Jack Freeley** appointed to handle San Francisco and Peninsula sales.

John T. Cross Jr., appointed Hobbs, New Mexico branch manager of Black, Sivalls & Bryson, manufacturers of tanks for the oil industry.

Arthur J. Reynolds named sales promotion manager for Washington Electric Supply Co. in Salt Lake City.

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The selection of our name was not an accident or a happenstance . . . we chose it because we believe in looking forward . . . We believe in unceasing efforts to improve in ever widening fields of production. . . . Perhaps this philosophy accounts for the many foundry items which we make for others.

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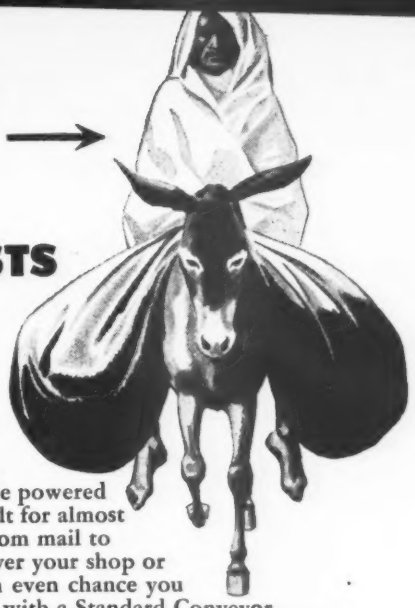
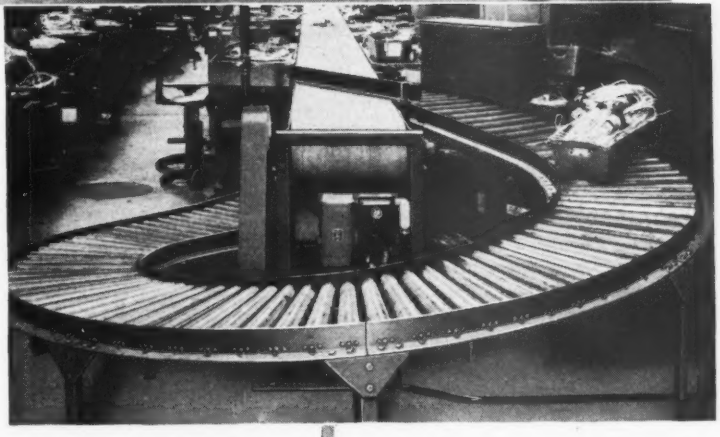


Looking for a way to get material from one part of your plant to another . . . you wouldn't consider the burro as the best answer. The real answer to fast, economical material handling is Standard Conveyors —a system, a section or a portable powered unit. Standard Conveyors are built for almost every material handling need, from mail to malleable iron castings. Look over your shop or warehouse, there's more than an even chance you can save time, money and labor with a Standard Conveyor. Standard Conveyor Company, General Offices: North St. Paul 9, Minn., Sales and Service in Principal Cities.



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Western Metal Congress Prepares For Record 1949 Attendance

General Chairman

E. R. BABYLON
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Western Metal Congress and Exposition, to be held in Shrine Convention Hall, Los Angeles, April 11-15, is getting ready for an attendance of 50,000 plant operators, metal engineers, production department heads, and purchasing agents. This show is designed solely for industry, and no appeal is being made for public attendance.

Cooperating societies include:

American Chemical Society, American Institute of Electrical Engineers, American Petroleum Institute, American Society of Civil Engineers, American Society of Mechanical Engineers, American Society for Testing Materials, American Society of Tool Engineers, National Association of Purchasing Agents, Pacific Coast Electrical Association, Pacific Coast Gas Association, Purchasing Agents Association of Los Angeles, Society of Automotive Engineers, Western Oil and Gas Association and others.

Here are hours and places of main events program:

Exposition—first three days, 12 noon to 10:30 p.m.; last two days, 10 a.m. to 6 p.m. Place—Shrine Convention Hall.

Technical sessions—9:30 a.m., 2 p.m., 8 p.m. Final metallography lecture, April 15, 4 p.m.

All technical sessions will be held in Shrine Convention Hall, except morning sessions, April 11-12-13 which will be in Biltmore Hotel.

Dinner-Dance-Entertainment 8 p.m., April 14, Biltmore Bowl.

Most of the papers will be delivered in Shrine Convention Hall where the exposition also will be held. First three morning programs will be in the Biltmore Hotel.

American Society for Metals

April 11, Monday, 9:30 a.m., Biltmore Hotel

Precision Investment Casting—A. W. Merrick, chief metallurgist, Austenal Laboratories, New York.

Hardness Testing—V. E. Lyssaght, Wilson Mechanical Instrument Co., Inc., New York.

The Surface Diffusion of Radioactive Silver on Silver—Earl R. Parker, associate professor, University of California, Berkeley.

Same Day, 2 p.m., Shrine Convention Hall

A New Theory for the Solid State—Carl A. Zapffe, consulting metallurgist, Baltimore.

The Sigma Phase—Francis B. Foley, superintendent of research, Midvale Co., Philadelphia.

Mechanical Properties and Efficiency Designing With Magnesium Alloys—George H. Found, Dow Chemical Co., Midland.

Same Day, 8 p.m., Shrine Convention Hall

Metallography of Aluminum Alloys—R. A. Bossert, metallographer, Aluminum Co., of America, Vernon, Calif.

April 12, Tuesday, 9:30 a.m., Biltmore Hotel
Corrosion

Fundamental Theories of Corrosion—Richard Pomeroy, Montgomery & Pomeroy, Pasadena, Calif.

Corrosion Problems in Light Alloys—Roy E. Paine, chief metallurgist, Aluminum Co., of America, of Los Angeles.

Corrosion Protection of Refinery Equipment—Henry P. Zeh, corrosion engineer, Standard Oil Co., of California, San Francisco.

Same Day, 8 p.m., Shrine Convention Hall

Metallography of Copper Alloys—Harry P. Croft, vice president in charge of development, Wheeling Bronze Casting Co., Moundsville, W. Va.

April 13, Wednesday, 9:30 a.m., Biltmore Hotel

Chromium Iron & Chromium-Nickel-Iron Alloys for High Temperature Service in Petroleum Refineries—E. E. Thum, editor, "Metal Progress," Cleveland.

General Review of Development of High Temperature Alloys for Jet Engines—Roger Long, chief metallurgist, National Advisory Committee for Aeronautics, Cleveland.

Refractory Metals, Such as Molybdenum, Zirconium, Tungsten, Tantalum for Ultra-High Temperature Service—Earl R. Parker, associate professor of metallurgy, University of California, Berkeley.

Same Day, 2 p.m., Shrine Convention Hall

Formability of Alloys for High Temperature Service—J. F. Tyrrell, research metallurgist, Solar Aircraft Co., San Diego.

A Cobalt-Base Sheet Alloy for High-Temperature Service — W. O. Binder and H. R. Spendelow, Jr., research metallurgists, Union Carbide & Carbon Research Laboratories, Niagara Falls.

Metallurgical Considerations in the Applications of Nuclear Energy for the Propulsion of Aircraft—Walter J. Koshuba, head, Materials Section, NEPA Project, Oak Ridge, Tenn.

Same Day, 8 p.m., Shrine Convention Hall

Metallography of Carbon and Low Alloy Steels—Prof. Wilbur R. Varney, assistant professor of mechanical engineering, California Institute of Technology, Pasadena.

April 14, Thursday, 9:30 a.m., Shrine Convention Hall

Metals for Use at Low Temperatures—S. L. Hoyt, metallurgical research advisor, Battelle Memorial Institute, Columbus.

Recent Developments in Strain Measurement—William T. Bean, Jr., consultant, Detroit.

The Fabrication of Stainless Steel—Bernard Gross, director of research, Rohr Aircraft Corp., Chula Vista, Calif.

Same Day, 2 p.m., Shrine Convention Hall

Revealing the Grain Structure of Common Aluminum Alloy Metallographic Specimens—L. J. Barker, metallographer, Permanente Metals Corp., Trentwood, Wash.

The Tensile Impact Properties of Some Metals and Alloys—D. S. Clark, associate professor of mechanical engineering, California Institute of Technology, Pasadena.

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Stainless Steels for Special Services—V. N. Krivobok, International Nickel Co., New York.

Same Day 8 p.m., Biltmore Bowl
Dinner-Dance-Entertainment

April 15, Friday, 9:30 p.m., Shrine Convention Hall

Ferritic Low-Alloy Boron-Titanium Steel for Use at Moderately High Temperatures—G. F. Comstock, metallurgist, Titanium Alloy Mfg. Co., Niagara Falls.

Testing—Arthur E. Focke, Diamond Chain & Manufacturing Co., Indianapolis.

Production Use of Baron Steels—F. J. Robbins, vice president, and J. J. Lawless, metallurgist, Plomb Tool Co., Los Angeles.

Materials Required for Design of High Speed Airplanes—T. E. Piper, chief materials and Procurement engineer, Northrop Aircraft, Inc., Hawthorne, Calif.

Same Day, 2 p.m., Shrine Convention Hall

Fatigue of Metals—Francis G. Tatnall, Baldwin Locomotive Works, Philadelphia.

Wrinkles in Heat Treating—G. B. Berlien, Industrial Steel Treating Co., Oakland.

Influence of Carbide-Forming Elements on Underbead Cracking of Low Alloy Steel—R. S. Stewart, assistant chief, Physical Metallurgy Division, and S. F. Urban, director of research, Titanium Alloy Manufacturing Division, National Lead Co., Niagara Falls.

Same Day, 4 p.m., Shrine Convention Hall

Metallography of Stainless Steels—Keith F. Finlay, metallurgist, Northrop Aircraft, Inc., Hawthorne.

American Welding Society

April 11, Monday, 9:30 p.m., Biltmore Hotel
Automatic Welding

Same Day, 2 p.m., Shrine Convention Hall

Metallurgical Problems in Drilling and Petroleum Production—G. W. Whitney, chief metallurgists, Baltimore.

Some Factors Affecting Behavior of Steel During Cold Working—Harold K. Work, director, Research Division, New York University, College of Engineering, New York.

Tandem-Arc Submerged-Melt Welding of Line Pipe—Charles A. Babbitt, vice president, Cal Metal Corp., Torrance, Calif.

Automatic Welding of Pressure Vessels—Clinton E. Swift, welding engineer, C. F. Braun & Co., Alhambra, Calif.

Developments in Automatic Hard Facing—H. W. Sharp, chief metallurgist, The Stoody Co., Whittier, Calif.

Same Day 2 p.m., Shrine Convention Hall
Welding Research

Welded Ship Failures and Their Relation to Other Structures—E. Paul DeGarmo, associate professor of mechanical engineering, University of California, Berkeley.

Brittle Fracture of Mild Steels and Heat-Treated Alloy Steels—Earl R. Parker, associate professor of physical metallurgy, University of California, Berkeley.

Recent Researches on the Metallurgy of Welding—Allen E. Flanigan, assistant professor of engineering, University of California, Westwood, Calif.

Same Day 8 p.m., Shrine Convention Hall
Panel Discussion Meeting, Welding Metallurgy

Panel of Experts: C. B. Voldrich, chief welding engineer, Battelle Memorial Institute, Columbus; E. R. Parker, associate professor of physical metallurgy, U.C., Berkeley; Alex Maradudin, materials engineer, Standard Oil Co., of California, El Segundo; Alan E. Flanigan, associate professor of engineering, U.C., Westwood; Donald S. Clark, associate professor of mechanical engineering, California Institute of Technology, Pasadena, Calif.

April 12, Tuesday, 9:30 p.m., Biltmore Hotel
Electrodes, Cutting, Brazing

Electrodes, Their Coatings and Influences—John J. Chyle, director of welding research, A. O. Smith Corp., Milwaukee.

Arc-Air Cutting and Gouging—Myron D. Stepath, welding engineer, Puget Sound Naval Shipyard, Bremerton.

Strength of Silver-Brazed Joints—A. M. Setapen, manager, Engineering Division, Handy & Harman Co., New York.

Same Day, 8 p.m., Shrine Convention Hall
Panel Discussion Meeting, Welding Design Clinic

Panel of Experts: E. Paul DeGarmo, associate professor of mechanical engineering, U.C., Berkeley; M. H. MacKusick, consulting engineer, Technical Welding Service, Los Angeles; F. J. Pilia, research engineer, Linde Air Products, Newark· R. T. Gillette, welding engineer Works Laboratory, General Electric Co., Schenectady.

April 13, Wednesday, 9:30 a.m., Biltmore Hotel
Inert-Gas Shielded-Arc Welding

The Application of Inert-Gas Arc-Welding to Airframes and Engines—Tom E. Piper, chief engineer, Northrop Aircraft, Inc., Hawthorne, Calif.

Welding With the Aircomatic Process—E. H. Roper, assistant manager, Technical Sales Division, Air Reduction Sales Co., New York.

Heliarc Welding in Production—F. J. Pilia, research engineer, Linde Air Products Co., Newark.

Same Day, 2 p.m., Shrine Convention Hall
Welding Non-Ferrous Alloys

New Developments in the Welding of Aluminum—C. B. Voldrich, chief welding engineer, Battelle Memorial Institute, Columbus.

Welding of High-Nickel Alloys—Kenneth M. Spicer, Technical Service Department, International Nickel Co., New York.

Resistance Welding of Nickel Alloys—Frank G. Harkins, welding engineer, Solar Aircraft Co., San Diego.

Same Day 8 p.m., Shrine Convention Hall
Panel Discussion Meeting on Aircraft Welding

Panel of Experts: Tom E. Piper, chief procurement engineer, Northrop Aircraft, Inc., Hawthorne; Frank G. Harkins, welding engineer, Solar Aircraft Co., San Diego; Charles E. Smith, procurement engineer, Douglas Aircraft, Long Beach, Calif; Fred Pipher, welding engineer Lockheed Aircraft, Burbank; Bert Gross, director of research, Rohr Aircraft, Chula Vista, Calif.

April 14, Thursday, 9:30 a.m., Shrine Convention Hall—Resistance Welding

Resistance Welding—History, Design, Control, and Applictaion—Robert T. Gillette, welding engineer, Works Laboratory, General Electric Co., Schenectady.

Some Developments in Resistance Welding Controls—Eugene Lica, electrical engineer, Douglas Aircraft Co., Santa Monica.

Three-Phase Resistance Welding Machinery—J. H. Cooper, chief sales engineer, Taylor-Winfield Corp., Warren, Ohio.

Same Day 8 p.m., Biltmore Bowl
Dinner-Dance-Entertainment

April 15, Friday, 9:30 a.m., Shrine Convention Hall
Codes, Safety, Inspection

Recent Changes in Pressure-Vessel Codes—Elmer O. Bergman, consulting engineer, C. F. Braun & Co., Alhambra, Calif.

Proposed Code for the Control of Hazardous Substances—George A. Sherman, State of California Division of Industrial Safety, San Francisco.

Non-Destructive Testing of Weldments—R. O. Schiebel, mid-continent manager, Magnaflux Corp., Chicago.

American Foundrymen's Society

April 11, Monday 8 p.m.

A joint session with American Institute of Mining and Metallurgical Engineers, Metals Division.

Oxygen in Steelmaking—A speaker from Linde Organization, New York.

(Continued on Page 97)

Silicone News

DC CORNING SILICONES

Increased Volume Cuts Cost of Silastic*

Design engineers weigh the properties and service life of a material against its price per pound. Sometimes there is only one material that will serve the purpose and price becomes relatively unimportant. That has been true of Silastic, the Dow Corning Silicone Rubber. But this initial market for Silastic has now become large enough to permit more efficient production and the opening of new markets through a price reduction of 20 to 45 cents a pound.

In the aircraft industry Silastic found a good initial market because it is the only resilient material that withstands hot oil and both high and low temperatures. Typical uses are: sealing thermal anti-icing systems; gasketing engine rocker boxes; and flexible heating ducts.

Silastic tubing reinforced with glass cloth is used to seal heating and ventilating ducts operating at 350-400° F. in Consolidated's Vultee Convair-Liner; in jet type planes at temperatures of 350-450° F. and under pressures up to 150 p.s.i.

In the automotive industry gaskets are one of many applications for Silastic now under test.

PHOTO COURTESY CONTINENTAL MOTORS CORPORATION

Silastic gaskets in the push rod and tube assembly of Continental's air cooled truck and bus engines withstand hot oil and temperatures ranging from —90° to 500° F.

Only Silastic is serviceable at temperatures in the range of —70° to —150° F. and upward of 500° F. It also has exceptional resistance to weathering and to many chemicals, excellent dielectric properties and water repellency. For more information phone our nearest branch office or write for pamphlet No. F5-X-2.

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For technical advice on preparation of work for plating and other finishing processes—for the latest information on metal cleaning—visit Booth 524 at the Western Metal Exposition. Detrex engineers and laboratory technicians will be on hand, prepared to assist you.

These Detrex men are specialists in every phase of metal cleaning. They'll be glad to help you out of any difficulties you may have—and they'll tip you off to the latest methods of getting more thorough cleaning with greater speed and economy.

At the Detrex booth you'll see and obtain data and literature on

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★ **Perchlorethylene Parts Dryer** for efficiently removing all moisture from finished parts.
★ **Standardized Metal Parts Spray Washers** for the plating and finishing industries.
★ **Alkali and Emulsion Cleaners and Strippers.**
★ **Spray Booth Coatings and Water Conditioners.**

Make the Detrex Consultation Booth your Exposition headquarters for technical help and information. And remember—if you can't attend the Exposition, the Detrex man in your territory will provide the same free consultation service.

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Manufacturers' Agent Contract Form Gets New Look

A "Standard Form of Agreement with Manufacturers' Agent" has been distributed to Manufacturers' Agents National Association members as a 12-page supplement to the confidential MANA Bulletin—the result of more than a year's intensive study.

Heretofore, M.A.N.A. points out, the principal has prepared and individually presented its own agency letter or brief form of contract to the agent, and all too often on a take-it-or-leave-it basis, the principal sometimes reasonably protected but the agent often left most vulnerable. From that point on anything could happen, and frequently did. Thus the agent-and-principal relationship in the past has not always been a happy one, but many years of observation and research into the problem indicated that the chief difficulty lay with an inadequate, impractical basic agreement, rather than with the system, or with the parties themselves.

The contents of this M.A.N.A. Agreement are divided as follows: (1) Purpose of Agreement; (2) Statement of Relationship; (3) Duration of Agreement; (4) Assignment of Agreement; (5) Territory and Scope of Operations; (6) Products, Equipment, and Services; (7) Sales Channels and Restrictions; (8) Prices, Terms, and Sales Policy; (9) Commission Rates and Computation; (10) Commission Payments; (11) Invoices and Collections; (12) Selling Aids and Supplies; (13) Handling of Inquiries and Quotations; (14) Products Guarantee, and Warranty; (15) Handling and Acceptance of Orders; (16) Shipments and Shipping Information; (17) Additional Obligations of Agent; (18) Additional Obligations of Principal; (19) Adjustment of Disputes, and Provisions for Arbitration; (20) Rights upon Termination of Agreement; and (21) General Conditions.

The form is self-explanatory and entirely elastic, providing for the preparation and appending of Exhibits to cover variations in different fields of endeavor and all individual conditions and circumstances. What is most important, is that this form is designed to be perfectly fair to agent and principal alike; and to make possible a careful study of its unbiased and mutually protective provisions, Manufacturers' Agents National Association will mail one copy to any agent, or to any manufacturer or supplier, writing on its business stationery to the Executive Secretary, at 542 South Broadway, Los Angeles 13, California, mentioning *Western Industry*.

Industrial Hygiene Facilities Established In Oakland, Calif.

The West Coast's rapid and continuing industrial development has reached the point where it now includes an industrial hygiene laboratory, the Pacific Industrial Hygiene Laboratories in Oakland, Calif.

Its work is divided into two main classes. The first, evaluation of work environments in industry with respect to the healthfulness of conditions, consists of conducting tests to ascertain whether there are or may be materials present in the air breathed by employees that might be harmful, and if this is found to be true, by determining the extent of the exposure.

By knowing the degree of air-contamination, it is possible to predict the need for precautions to protect the health of those employed in the vicinity where toxic materials may be discharged into the air. Fortunately, the human body can tolerate varying amounts of toxic substance and it is not always necessary to eliminate the exposure completely, but often only to reduce it to a tolerable level.

Of special help to management is the review of plans for proposed new processes prior to their installation. In this manner potential exposures to harmful materials may be anticipated and control measures instituted at the most economical time.

Some of the more common potentially harmful substances to be encountered in industry include:

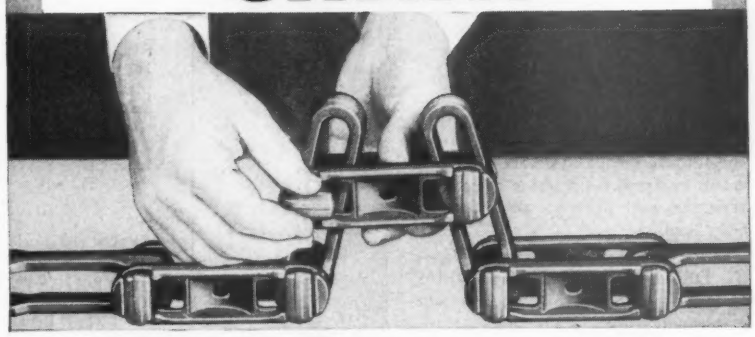
Dust containing free silica, lead, antimony, beryllium, manganese, in fact most of the heavy metals; *metal fume*, especially zinc and cadmium oxides and mercury; *vapors* of several chlorinated hydrocarbons such as carbon tetrachloride and chlorinated diphenyls, or of the aromatics, notably benzol and of such substances as carbon bisulphide; and *toxic gases* such as carbon monoxide, hydrogen cyanide, and hydrogen sulfide.

In the second category, the evaluation of new products as to their safety for public use, work in the laboratories has included such problems as the following:

Determining the health-hazard associated with the use of a new jewelry polish; consultation on a new cold-wave solution for a New Zealand manufacturer; the development of a new jewelry polish; and of testing the toxicity of a new brake-fluid.

The scope of work in this field ranges all the way from mere reports on what has been published in literature on the subject to experimental studies. These studies, for instance, are to ascertain the effects of breathing known concentrations of a given material in the aid for varied periods of time.

A *New* CONVEYOR CHAIN



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- GREATER FLEXIBILITY ON VERTICAL BENDS
- INTERCHANGEABLE WITH REGULAR 4" CHAIN
- ULTIMATE STRENGTH 48,000 POUNDS

Patented X-458 Chain is another triumph in the Jervis B. Webb Company 3-decade history of pioneering in the development of better conveyors.

Thoroughly tested in service, it has proven ideal for overhead, floor type or drag line conveyors.

X-458 Chain cannot telescope or disassemble in service; eliminating that source of damage to conveyor drives. Individual links are stiffer and stronger, yet this chain provides more flexibility in vertical bends.

Drop forged from high carbon steel of 85,000 to 95,000 psi tensile strength, this chain has an ultimate strength of 48,000 pounds. It has exceptional ability to withstand shock loads and is unusually resistant to corrosive and abrasive action.

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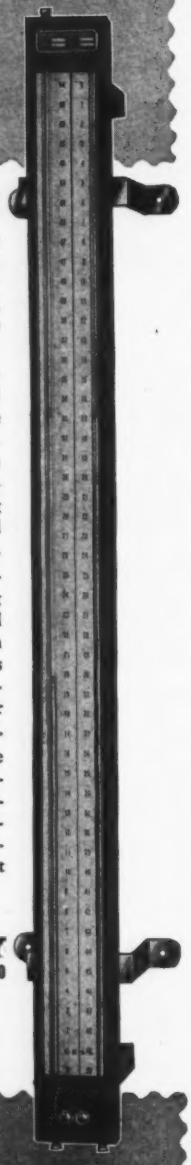

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This new manometer development—the DUAL-TUBE, Meriam Model M-100 — consists of two separate manometer tubes in the same case—each tube with individual well. The left tube has a scale increasing upward; the right tube a scale increasing downward. Both tubes are connected in parallel to the same pressure source.

The instrument is ideal as a calibrating standard manometer for checking flow meters, pressure gauges, and other secondary units operating on pressure or vacuum principle. It is direct reading. Since both tubes indicate the same reading, the operator can choose the one most convenient.

It helps avoid accidents, saves time and effort in reading. Of simple, rugged construction, it is built in accordance with Meriam standards of accuracy and sensitivity for long, reliable service. Ask for Catalog Sheet M-100WM.

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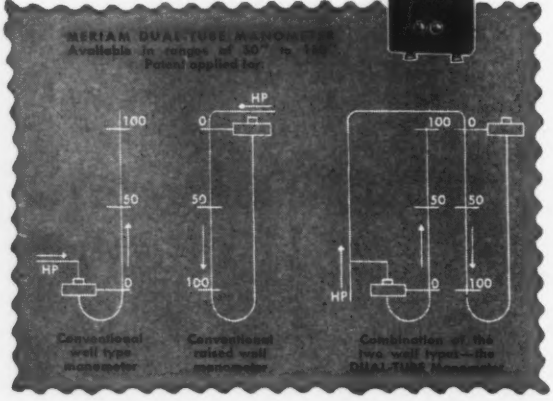

THE WEST ON ITS WAY

CALIFORNIA

PACKAGING EXPOSITION—August 9-12 inclusive is the time for the 1949 Western Packaging Exposition. San Francisco Civic Auditorium is the place.

BRASS PLANT COMING—American Brass Co. has bought a 45-acre tract in Paramount, where they plan to build one of the area's largest postwar plants. Products are expected to be sheets, wire, rods, and tubes. Plans for construction are still in development stage. The firm's head offices are in Waterbury, Connecticut.

STEEL PLANT—Koehring Company, Milwaukee, has established a West Coast division in Stockton, including manufacturing facilities. The plant will produce steel subassemblies and weldments, and will final-assemble equipment destined for Western use.

PLASTIC PLANT MOVES—National Plastic Company has moved from 6819 S. Ayalon Blvd., Los Angeles, to 2591 E. Foothill Blvd., Pasadena, where enlarged production areas and improved service are available.

RESORT PLANS—E. A. Brule, chief administrative assistant of the Sacramento district army engineers office, discloses plans are starting to unfold to create a new "playground" upon completion of the multi-million dollar Pine Flat Dam project on the Kings River. Brule said the master plan is to be submitted to Washington headquarters by June 1.

HANNA CENTER STARTS BUILDING—Construction is due to begin immediately on the new $1,500,000 Hanna Center for Boys in the Sonoma valley. $1,430,000 building contract has been awarded to William & Burrows, Inc., Burlingame general contractors.

AIR BASE FOR HAYWARD—$1,300,000 has been allocated for a new airbase at Hayward, of which $500,000 will be spent immediately for hangars and maintenance shops. This installation, for the air wing of the California National Guard, will base a fighter group, as well as other units and attached squadrons. A jet fighter group may also be based there. Planes of the 61st Fighter Wing, now quartered at Oakland airport, will be moved to Hayward as soon as accommodations are completed.

THREE DOZEN MORE—Aviation Maintenance Corp. (Van Nuys) announces that their present contract with U. S. Air Force to recondition 47 C-47's has been upped by another 36. Planes, now at Tucson, are being peeled of their storage wraps and flown to Van Nuys for overhauling.

STANFORD LAB EXPANSION—Plans have been revealed for addition of a $30,000 minging and metallurgy laboratory at Stanford University.

TEXTILE MILL—California's third woolen mill will open in Eureka soon, according to Victor Egan and Clyde Wagner, operators. This will be the second woolen mill in Eureka; state's third plant is in Santa Ana. New Eureka mill plans to employ about twenty persons to start, to process raw wool into finished cloth and blankets.

ESPEE ON BUYING SPREE—Southern Pacific Company is in the market for about $23,850,000 worth of new equipment. The firm has requested Interstate Commerce Commission authority to issue $15,900,000 of trust certificates for the purpose. 55 new diesel-electric locomotives and 1550 freight cars are needed.

PRESS PLANT PLANS—A new Times-Mirror Press plant is in process of construction at S. Boyle Ave. and E. 8th St., Los Angeles, at a cost of over $1,500,000. A one story and basement building is being erected on the 9.3 acre site, to be completed and occupied by this fall. With a floor space of 109,000 square feet, it will be used to manufacture and print telephone books, in conjunction with the S. Broadway Times-Mirror Press building.

LAUNDRY APPLIANCE LETDOWN—Thor Corp.'s assembly plant at El Monte has temporarily closed down because of a reduction in the sale of laundry appliances. This affects about 50 employees.

HELLO LONDON—London is now a port of call for the Fairisle of Waterman Line. Sudden & Christenson, Inc. are Pacific Coast agents for the line.

OUT OF THE HOLE—Bishop Oil Company has abandoned drilling operations on Russell No. 1 well on the firm's 2400 acre lease in Cuyama valley. Drilling went to 2536 feet.

LONG TERM INSURANCE—The eight-story building at Howard and Fremont Sts. (San Francisco) which was purchased last month from Butler Bros. by California Packing Corp., has been resold to New England Mutual Life Insurance Co. for $2,500,000. Calpack has leased the building for 25 years from the insurance company, and will locate their offices there after alterations are completed.

265 MEN IN A FLYING BOAT—Four crewmen and 265 navy men were aboard the Caroline Mars on a recent flight from San Diego to the Alameda Naval Air Station, which flight established a new world's record for passenger carrying plants. Navy modestly termed the trip "routine return of personnel to their home bases." Take-off was made without JATO.

CHURCH BUILDING—First Presbyterian Church of Whittier has under construction their new 500-seat building. Plans call for April completion, with flexibility allowing additional construction as needed.

CHURCH PLANS REMODELING—Plaza Community Center, the Southern California-Arizona Conference of the Methodist Church headquarters, is being renovated. About $55,000 will be spent on the interior, and $30,000 on the exterior.

HAWAIIAN FREIGHT SERVICE—Hawaiian Freight Forwarders, Ltd., an international organization with complete freight and cargo service, has been named to handle all Northwest Airlines air cargo in the islands. The Hawaiian firm has Pacific coast offices in San Francisco and Los Angeles.

SAN ANDREAS PLANT IMPROVEMENT—Calaveras Cement Company is in process of installing $200,000 worth of electrical precipitation equipment at the San Andreas plant. This new Cottrell unit will make a total of three electrical precipitators in operation at the plant.

DEEPEST GOES DEEPER—Superior Oil Co.'s wildcat well near Saticoy in Ventura county is down to around 18,000 feet. Oil showings have been found. This well, according to Superior, is the deepest in the world, and getting deeper at the rate of 70 to 80 feet per day.

SADDLE AN AIRPLANE—A 1,000 acre aerial dude ranch is planned on leased land at the Blythe airport, a sun-baked desert site about 200 miles south of Riverside. M. S. Kennedy and A. R. Kesser, both former Federal airport engineers, plan houses, motels, trailer courts, swimming pools, golf course, and recreation center within a year, to rival Palm Springs. They expect most of their patronage to be airborne from Los Angeles. *(Continued on Page 88)*

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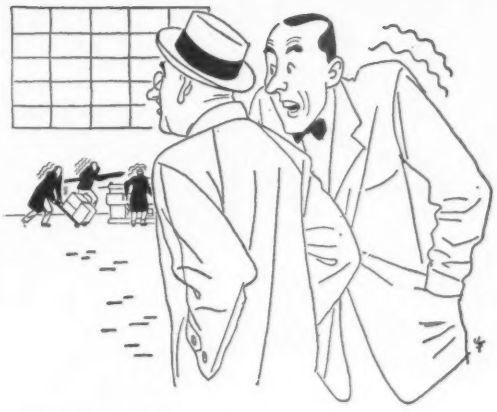

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THE WEST ON ITS WAY

(Continued from Page 87)

PUERTO RICAN SERVICE—Arrow Line (Sudden & Christenson Agents) has extended eastbound service to include Puerto Rican ports of call. Regular service will be on a 12-day schedule, starting March 18. One additional ship, Linfield Victory, has been added to the line.

NAME CHANGE—Gate-Way, Inc., Anaheim manufacturer of Kwikset doorlocks and builders hardware, has changed the name to Kwikset Locks, Inc.

$2,000,000 PLANT—International Ramie Company announces plans for a $2,000,000 plant near Fowler. This is a major new project for northern California.

NAME CHANGE—Angelus Tool Manufacturing Co. of Los Angeles, has changed the name to Flex-O-Tool Co. The firm manufactures mechanics' hand tools.

SWEET MUSIC—Regal Music Co., with offices at 420 S. Spring St., Los Angeles, is now manufacturing clarinets at the rate of 25 per week at the Burbank and No. Hollywood plants. B. K. Bettelheim and Martin Leeb are partners.

HOSIERY SNAG—Gotham Hosiery Co., Inc. has purchased the good will, trade marks and names, patents and merchandise inventory of Hollyvogue. Gotham will retain the sales staff and dyeing and finishing plants in Los Angeles, and the California plant will be used to finish hosiery knit in the east.

This transaction threw nearly 200 employees of the Los Angeles plant out of work, according to the CIO Labor Herald, and the president of the American Federation of Hosiery Workers local 43-A said he would demand that the workers be paid some sort of severance pay. "We may have to go to arbitration on this," he said, "but as of right now (Feb. 22) I'm prepared to ask for $1,000 for each employee."

COLORADO

OIL SHALE PROCESS—Union Oil Co. of California has perfected an oil shale process to convert petroleum content of oil shale to high grade aviation fuel, diesel, and jet fuels. A commercial-sized plant is planned for the Rifle area.

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NEW HOSPITAL—Pueblo's new $6,000,000 State hospital will soon be underway. Engineering and surveying were started during the first week of March. Three buildingss are proposed — two six-story structures to house seniles and a four-story building for female rehabilitation. Plans for two of the buildings have not yet been completed.

BUS LINE SELLING OUT—Application has been filed with Colorado P. U. C. for permission to transfer the Pueblo Public Transportation System from the Colorado Power company to the Pueblo Transit company for $443,000.

MILLION DOLLAR POWER PLANT—A $1,097,556 power plant, representing the greatest single investment in Rocky Ford, is practically assured if the Southern Colorado Power company and Rocky Ford city officials can negotiate a franchise guaranteeing a long enough period of operation to justify the investment.

PUEBLO HYDROGENATION PLANT—Southern Colorado Chamber of Commerce has under consideration the possibility of obtaining a multi-million dollar cohydrogenation plant.

GAS CO. MOVES OFFICES—Western Natural Gas Company is moving district offices from Durango to Farmington, in order to be closer to field operations.

GOING DOWN—Western Natural Gas Co. and Byrd-Frost, Inc., are drilling Western Natural's second oil test in Dove Creek field. Late last year they brought in a 500-barrel well.

DRUG FIRE—Republic Drug Company's East Colfax Ave. (Denver) store suffered $150,000 fire loss in a storage room disaster. Stock and merchandise for the company's five Denver outlets suffered heaviest losses in cosmetics and patent drugs.

About two weeks previous, Walgreen Drug Co.'s 16th and Curtis St. store suffered a similar $100,000 loss.

GAS CAME UP—Dyer & Rice, Denver drilling firm, stirred a minor drilling boom near Loveland recently when a wildcat well they were working on penetrated gas-producing strata with a daily potential of 2,000,000 cubic feet. The well was drilled to 1393 feet, but company officials said they were going 400 to 500 feet further in search of oil.

SYNTHETIC FUEL PLANT—Construction of a plant for processing synthetic liquid fuel from regional coal deposits is being sought by the new Tri-County Development Association. This organization, composed by residents of Delta, Gunnison, and Montrose counties, has chosen Charles Fairlamb, president of the Delta Chamber of Commerce as its head, to try to secure federal approval for a pilot plant at Austin, and to get a permit to use Gunnison river waters for operation. North Fork coal is estimated to be capable of a 168 gallons of gasoline per ton yield. Six billion tons of North Fork coal are estimated to be available.

IDAHO

TABERNACLE DESTROYED—Bannock stake tabernacle, Church of Jesus Christ of Latter-Day-Saints at Grace was destroyed by fire recently. Replacement cost of the 100x45 foot cement block structure is estimated at approximately $130,000.

MONTANA

NEW LUMBER YARD—Liberty County Lumber Co., newly-incorporated firm, will soon start operation in Chester. W. F. Henderson, Harvey Aubrey, and D. W. Henderson of Shelby, and W. C. Linder and Charles Miller of Cut Bank are the incorporators, who are setting up this $100,000 business. They also intend to buy, sell, and exchange real estate.

(Continued on Page 90)

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THE WEST ON ITS WAY

(Continued from Page 89)

NEW LEAD VEIN—A new lead vein—claimed to be the biggest since the Drumlummon—has been discovered at the Eldorado mine, two miles east of Blackfoot City and 11 miles west of the Drumlummon mine near Marysville. The lead is 12 to 15 feet wide, and 20,000 tons is estimated to be blocked out. This ore is too marginal a grade to ship to a smelter; it makes a high grade mill head for a flotation plant, the operators report.

NEW ORE HOIST—Anaconda Copper is having General Electric build for them a new ore hoist for the Kelley shaft near Butte. The powerful hoist will be capable of lifting 12 tons of ore at a rate of 2300 feet per minute. Shipment is expected in the fall.

NEVADA

GOLD STRIKE—Red Hill Florence Mining Company's leased White Rock claim at Goldfield, is reported to have struck ore assaying at more than $750 per ton, in the five cars tested. The firm has stockpiled $25,000 to $30,000 worth of ore which it plans to mill in the recently constructed Newmont mill. Extent of this new vein has not been determined.

PERLITE PROCESSING PLANT—Sno-Lite Products Co. of Reno, and the natural resources committee of the Churchill county Chamber of Commerce have completed negotiations for the processing of perlite from two deposits near Fallon. Tests have found the processed perlite ideal for lightweight plaster, concrete aggregate and insulation.

NEW MEXICO

$1½ MILLION UTILITY SALE—Public Service Commission has approved sale of Inland Utilities Co. property to Lea County Electric Co-operative for $525,000. Inland serves Lovington, Tatum, and Buckeye.

FURNITURE STORE—American Furniture Co., Albuquerque, will erect a 2-story 65,000 square foot building.

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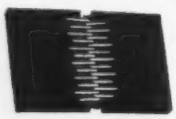

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OREGON

SCRAP RESEARCH—Oregon Lumber Co. has established a research laboratory in Portland, with Arthur Anderson in charge, to develop new uses for lumber scrap.

UTAH

FERTILIZER PLANT MAY REOPEN—The former Kalunite plant at Salt Lake City stands a good chance of reopening shortly for the production of ammonia-sulphate fertilizer. Production by the J. R. Simplot Co. has been held up by department of commerce's refusal to allocate scarce anhydrous ammonium, needed in manufacture. Gus P. Backman, executive secretary of the Salt Lake City Chamber of Commerce, who recently returned from a commerce department hearing in Washington, between $25,000 and $50,000 has been given first priority by the Cache said the allocation now was "almost sure."

BEAR RIVER BRIDGE—A modern concrete two-lane bridge costing county commission, to be built over Bear River between Mendon and Logan, about five miles west of Logan. Construction will start as soon as weather permits.

TO WRECK PINECREST LODGE—Pinecrest Lodge in Emigration canyon, 14 miles east of Salt Lake City, has been sold for salvage. Wrecking will begin as soon as weather permits.

WASHINGTON

NEW STEEL CO.—Empire Steel Co. has been organized by Seattle Steel Co. as a subsidiary to build and operate a $200,000, 30,000 sq. ft. warehouse. Building completion is scheduled for June.

WYOMING

GYPSUM PLANT SOLD—Gypsum Products Co., Cody, has been sold to the Interstate Chemicals Co. of Seattle, Washington. Sale included the mill and warehouse north of Cody, and sulphur and Gypsum holdings west of Cody.

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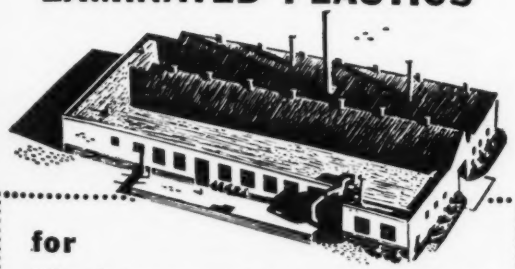

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Standard fabric-type conveyor belts 115 feet long, running between 52-foot centers, were in use for the first two years of the plant's operation. Nature of the material handled made it necessary to replace these belts on an average of every two months.

B. F. Goodrich industrial engineers were called in to diagnose and prescribe, and they came up with a special composition rubber conveyor which eliminates the problem to a great extent. For the first six months of operation, at least, it has given trouble-free service and is still going strong —with apparent prospect of a healthy long life.

• This rubberized canvas conveyor belt transports clinkers at 220 to 240 degrees Fahrenheit. So far (six months) it has outlasted three of its fabric-type predecessors.

This new development is an endless ribbon 24 inches wide, with two plies of 42-ounce duck and one ply of No. 50 cord. Its top surface is 5/32 of an inch thick and the back cover is 1/16 of an inch.

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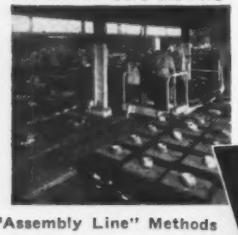

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Truck, Trailer, Equipment Show

The National Truck, Trailer, and Equipment show, planned by the Automotive Council of Los Angeles and to be held at the Pan Pacific Auditorium on June 15-18, is said to be the only show of its kind to be held in the United States this year.

Exhibitors will include all of the leading manufacturers of automobiles, trucks, truck-trailers, and automotive equipment. It is said that a number of manufacturers are withholding new improvements for release at the national show. The exhibit is expected to attract large numbers of the buying public who will have the opportunity to compare various makes of equipment on the same show floor. There will be no admission charge.

General manager of the National Show is C. T. Thomas, General Petroleum Corporation. His executive committee includes P. H. Ducker, (Edison Company) public relations counselor; A. D. Ferrari, (Bohemian Distributing) publicity chairman; J. W. Sinclair (Union Oil) sales manager; G. W. Magee (Coca-Cola) sales counselor; Hal Chaille' (Fruehauf Trailer) publicity manager.

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New Training Course For Management and Personnel

The Industrial Relations Section of the California Institute of Technology, Pasadena, announces its second series of short full-time courses on "Management and Personnel Training." Five separate courses, each lasting one week, will be given:

June 19 to June 24—Negotiation and Administration of Union Contracts
June 26 to July 1—Employment Policies and Procedures
July 5 to July 9—Training of Employees and Supervisors
July 10 to July 15—National Income and Its Distribtion
July 17 to July 22—Integrating a Personnel Program

Each course is designed to cover the broad phases of the subject as well as the newest developments, trends, and successful practices.

The conference leaders include:

Lawrence A. Appley, President, American Management Association; Gilbert Brighouse, Chairman, Department of Psychology, Occidental College; Martin S. Firth, Director of Program Research and Development, General Motors Institute; M. I. Gershenson, Chief, Division of Labor Statistics and Research, State of California; Robert D. Gray, Director, Industrial Relations Section, California Institute of Technology; L. Clayton Hill, Professor of Industrial Relations, University of Michigan; Richard O. Sensor, Assistant Professor of Industrial Relations, California Institute of Technology; Ray E. Untereiner, Professor of Economics, California Institute of Technology; Leo Wolman, Professor of Economics, Columbia University; and Arthur H. Young, Lecturer on Industrial Relations, California Institute of Technology.

Further information can be obtained from Robert D. Gray, Director, Industrial Relations Section, California Institute of Technology, Pasadena 4, Pasadena.

Increase Offsets Cut

Although General Motors cut wages of production workers 2 cents an hour for the quarter from March to May because of the decline in the cost of living index, and salaried workers $10 a month, another fact has not been given much recent publicity. It is that on May 29 the contract with the U.A.W. calls for a 3 cent increase on an annual basis, with a $15 bonus to salaried workers. These allowances were accepted by the company on the theory that the experienced worker is worth at least that much more each year because his production increases.

Aircraft Coordination

A coordinating committee on the agricultural usage of aircraft has been appointed by Warren E. Carey, director of aeronautics for California, in cooperation with A. A. Brock, director of agriculture. This committee will bring together airplane crop dusters and seeders, chemical manufacturers, farmers, College of Agriculture representatives, officials of the state Department of Agriculture, the California Aeronautics Commission and many others to seek solutions to the many problems attendant to the agricultural usage of aircraft.

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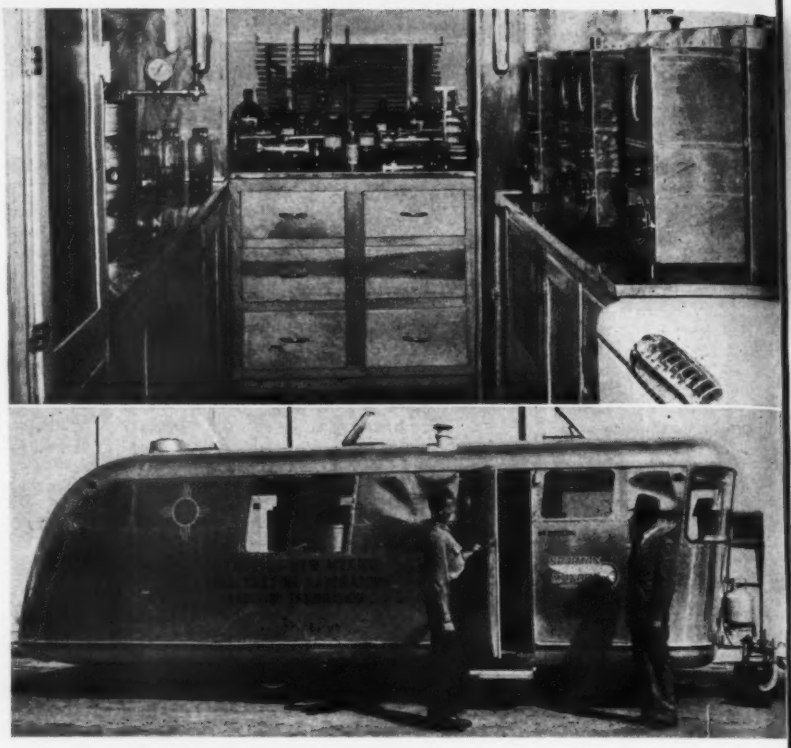
This is a fast-moving efficient organization of competent people, always ready and able to serve you well.

Wandering Watchbird

New Mexico has recently put into operation a traveling chemical laboratory designed to make unscheduled tests of wholesale and retail stocks of gasoline and other petroleum products.

Operation of the lab has a twofold purpose: to prevent tax evasion by addition of untaxed products to those taxed, and to assure the buying public of receiving the proper quality of product.

Tests so far completed have revealed much interesting data. For instance, of 715 gasoline samplings, 10 contained dirt and "bottom settlings," while four others were found to be unsatisfactory, showing a high distillation point. This indicates the mixture of heavier refined products, either intentionally or accidentally. In several instances regular brand gasoline has been found to be unsatisfactory, showing a high distillation point. This indicates the mixture of heavier refined products, either intentionally or accidentally. In several instances regular brand gasoline has been found being dispensed through pumps indicating the product to be ethyl or first grade gasoline. A great percentage of irregularities has been found in kerosene, or products called kerosene.



• Above, interior of New Mexico's new mobile laboratory to test gasoline and other liquid fuels relative to safety and quality. Below, exterior of the rolling test house. A. M. Erdal, chemist, stands at left; Paul E. Culver, director of the laboratory, at right.

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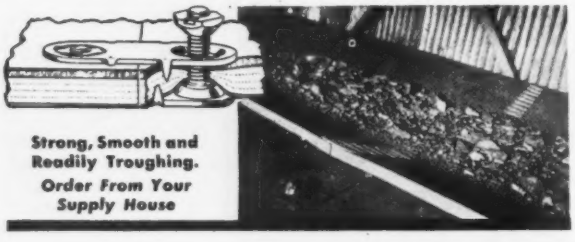

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METAL EVAPORATION *(From Page 46)*

cause the coating particles fused therein or thereon are of molecular dimensions and subject to rapid chilling.

Metals and Non-Metals

Tests have shown that both metals and nonmetals may be used as evaporation coating materials, provided they are adequately stable at temperatures and pressures within the range of a given coating setup. However, unalloyed metals and metallic salts have thus far proved to be adaptible to the greatest number of practical evaporation applications.

Bell Jars

Vacuum chambers are of the bell-jar type. Each is normally evacuated for a vapor pressure of about 5 x 10 —6 mm. Hg. with high-speed vacuum pumps during the electrical heating process. At such pressures, typical coating materials have the following evaporation temperatures:

Metal	*Absolute Temperature*
Aluminum	1461
Antimony	973
Barium	905
Bismuth	913
Copper	1542
Gold	1445
Iron	1694
Lead	1000
Magnesium	712
Molybdenum	2755
Nickel	1717
Platinum	2332
Silver	1319
Tin	1148
Zinc	623

Most of these materials will melt at appreciably lower temperatures, but surface tension will not permit them to flow prior to evaporation.

Amperage Required

Amperage for heating, derived from a factory power line via a suitable transformer, is equivalent to about 100 amperes for each 1/16-inch thickness of the coating material segment—which segment is usually supported by a tungsten strip or within a tungsten heating coil. Hydrogen, helium, and other gases may be injected into the vacuum chamber to facilitate transfer of heat before the melting point of the coating material is reached. In some cases, materials are electroplated or prefused on tungsten supporting elements to increase the rate of evaporation or to improve the purity of evaporated particles.

Aluminum Used Most

Aluminum is one of the most widely-used evaporation coating materials because it can be deposited in transparent or opaque layers and will increase the ability of glass or transparent plastics to transmit or reflect ultraviolet light or to attain high visible reflectivity without eventually tarnishing. However, it has a pronounced tendency to dissolve supporting elements and requires a specialized use of bare tungsten retainers.

Tungsten retainers used to support most coating materials in the high-amperage evaporation process are cup-like coils or crucibles. A few special materials such as copper and silver require tantalum or molybdenum retainers.

Thickness of an evaporated alloy coating may range from less than a six-millionth of an inch upward, depending on degree of transparency or opacity required in the finished product.

Coating Time 5 Min.

In the evaporation of transparent coatings for optical elements such as photographic lenses, only five minutes of actual coating time is required. A hundred or more units may be coated as rapidly as a single piece. However, the production cycle for a single vacuum chamber—from the time a batch of lenses is loaded until the same batch is unloaded—amounts to 1½ hours, due to the need for low-pressure evacuation.

Thin Coatings Hold

Despite natural opacity of metallic materials, very thin metallic coatings actually increase the ability of transparent materials to transmit light by reducing glare or the tendency to reflect light. Thick or opaque coatings are applied by means of the evaporation process for the following purposes:

(1) Fabrication of high-quality reflectors for astronomical instruments, etc. Such reflectors are said to be superior to the re-

(Continued on Page 96)

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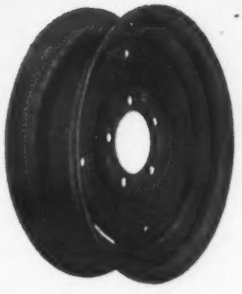

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(Continued from Page 95)

flectors made by "silvering" and other metallizing processes, because they require no supplementary roughening or burnishing treatments which reduce the reflection qualities of either a transparent surface or its metallic coating.

(2) Application of opaque coatings of maximum dimensional accuracy to microphone diaphrams and quartz fibers of the types used in electrical instruments. In this respect, evaporation coatings are equivalent to electroplated coatings except for the fact that the latter cannot be directly applied to nonmetallic surfaces or to surfaces which are not electrochemically compatible with the metallic coating materials.

(3) Production of conductive coatings to patterns so that durable and dimensionally-accurate production molds can be electroformed thereon. For example, wax masters of phonograph recordings have been conductively coated with heat- resistant metals by means of the evaporation coating process—so that production mold shells could be made on the patterns by means of the electroforming process.

Compared with other metal-finishing processes, evaporation coating is somewhat expensive; but, in the circumstances suggested, it should permit many industrial accomplishments and economies which are without precedent.

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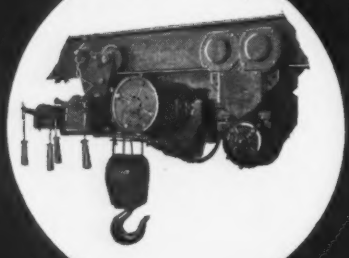

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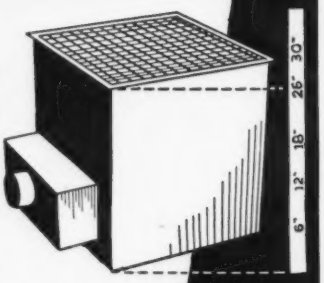

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METAL CONGRESS

(Continued from page 83)

Nature and Control of Emission from the Stack of the Common Cupola—John F. Drake and T. G. Kennard, Kennard & Drake, Los Angeles, and W. A. Saylor, Consolidated Western Steel Corp. Los Angeles.

April 13, Wednesday 2 p.m.

Variables in the Production of Nodular Structions in Gray Cast Iron—J. C. H. Stearns, Dow Chemical Co., Midland, Mich.

Nodular Graphite in Cast Iron—E. K. Smith, consulting metallurgist, Los Angeles.

April 14, Thursday, 2 p.m.

Steel Castings and their Place in Fabricated Products—W. A. Saylor, Consolidated Western Steel Corp., Los Angeles, and L. A. Pattison, Consolidated Western Steel Corp. Maywood, Calif.

Degasing of Aluminum Melts—Speaker to be announced.

American Institute of Mining & Metallurgical Engineers, Metals Div.

April 11, Monday 2 p.m.

Diffusion of Gases in Metals — William Beggs, Northrop Aircraft, Hawthorne, Calif.

Temper Brittleness of a Nickel-Chromium Steel—H P. Nielsen, University of Southern California, Los Angeles.

Same Day, 8 p.m.

Joint Program with the American Foundrymen's Society.

Oxygen in Steel Making—A speaker from Linde Organization, New York.

Nature and Control of Emissions from the Stack of the Common Cupola—John F. Drake and T. G. Kennard Drake & Kennard, Los Angeles, and W. A. Saylor, Consolidated Western Steel Corp., Los Angeles.

April 12, Tuesday, 2 p.m.

Some Metallurgical Characteristics Which Determine the Properties of Magnesium—George Found, Dow Chemical Co., Midland, Mich.

A Mathematical Approach to the Study of Alloys—Pol Duwez, associate professor of mechanical engineering, California Institute of Technology, Pasadena.

April 14, Thursday, 2 p.m.

Metallurgical Problems of Atomic Power Reactors—John P. Howe, Knoll Atomic Power Laboratories, Schenectady.

Society for Non-Destructive Testing

April 12, Tuesday, 2 p.m.

Railroad Non-Destructive Testing—Arthur S. Pedrick, assistant engineer of tests, Southern Pacific Co., San Francisco.

Automotive Non-Destructive Testing—Kenneth E. Rush, shop superintendent, Cummins Service & Sales, Los Angeles.

Same Day, 8 p.m.

Aircraft Non-Destructive Testing—William Hitt assistant chief inspector, Douglas Aircraft Co., Los Angeles.

General Material, Process and Quality Control by Non-Destructive Testing—Milfred J. Parker, chief inspector, Axelson Manufacturing Co., Los Angeles.

April 13, Wednesday, 2 p.m.

Oil Tool Manufacturing Non-Destructive Testing—Frank Drahos, assistant metallurgist, Byron Jackson Co., Los Angeles.

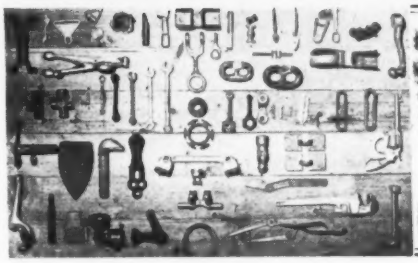
Oil Tool Service Non-Destructive Testing —M. E. Newman, Pacific Tubular Service Co., Los Angeles.

April 15, Friday, 2 p.m.

Petroleum Refinery Non-Destructive Testing—P. H. Woods, chief engineer, Tide Water Associated Oil Co., Avon, Calif.

Principles of Supersonics—Speaker to be announced.

OPPORTUNITY SECTION



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Projects undertaken by the Raw Materials Survey, Portland, Oregon, during the last year and being pursued at the present time include the following: Compilation of a limestone and lime economic report; volcanic ash utilization studies; industrial fuel studies; investigation of fertilizer demands to determine the feasibility of establishing an anhydrous ammonia plant in the Northwest; study of offshore iron deposits as a possible source of ore for a Northwest steel industry; investigation of Nortl.west talc and asbestos prospects; studies of various phases of wood waste utilization; investigation of off-shore sources of raw materials for present or possible Northwest industries.

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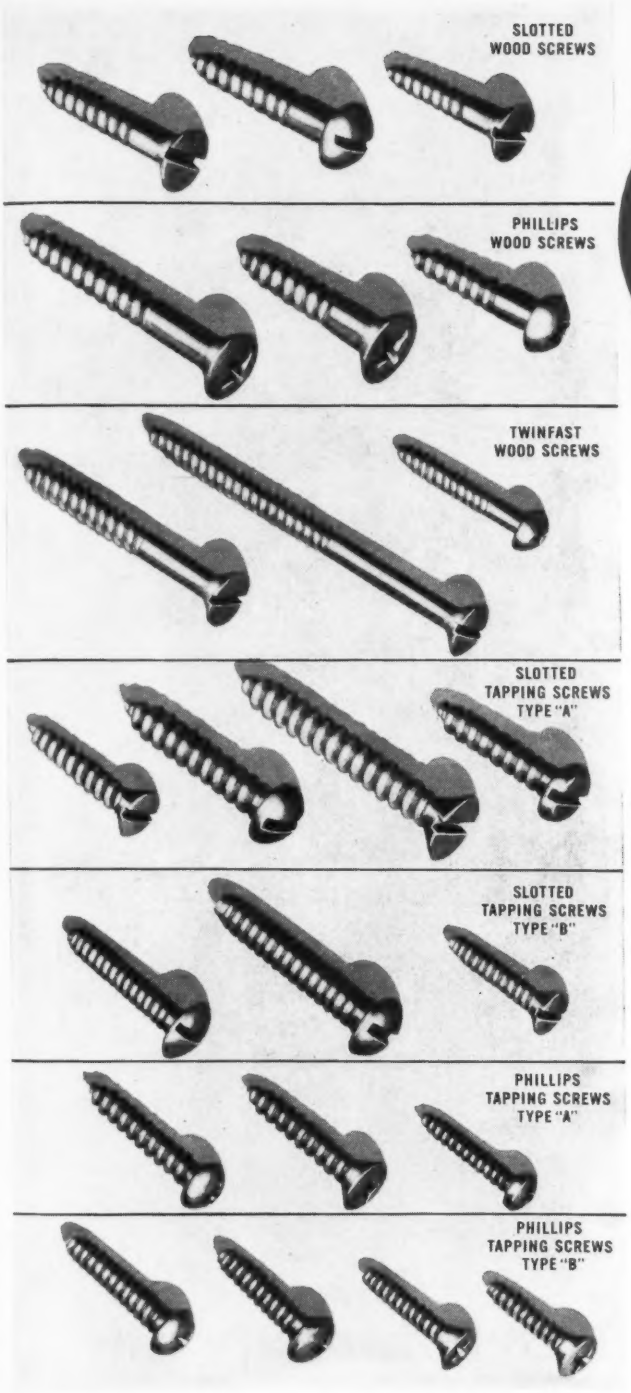

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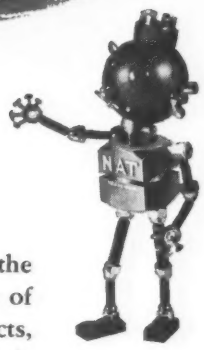

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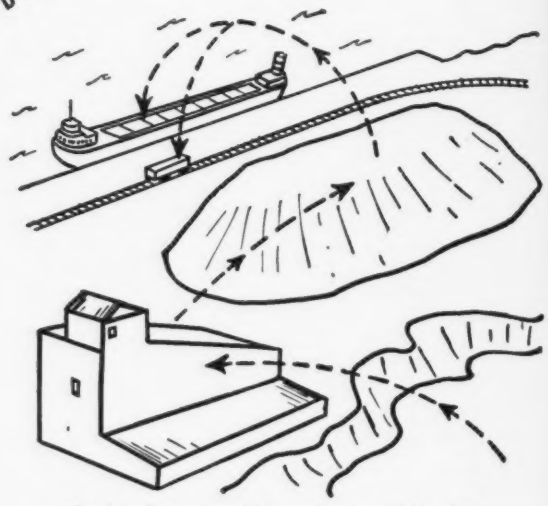

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